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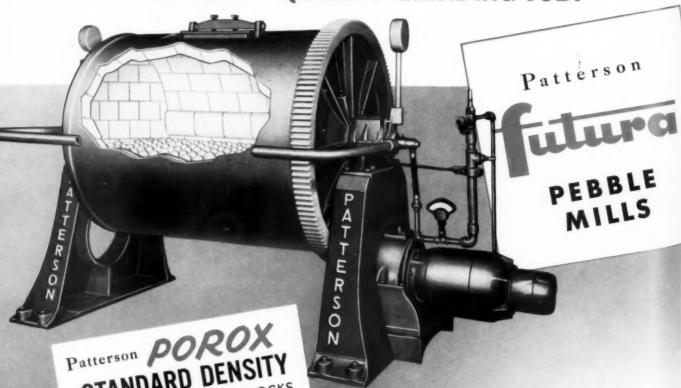
Appliance and

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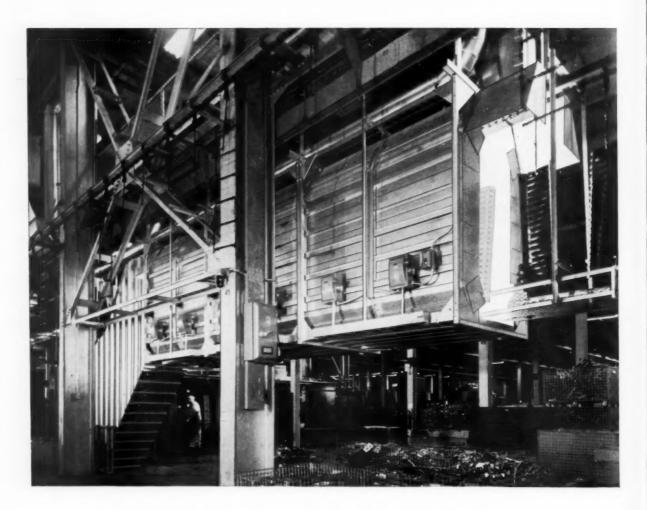
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5511

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Established January 1944 Published by

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trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial acope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product."

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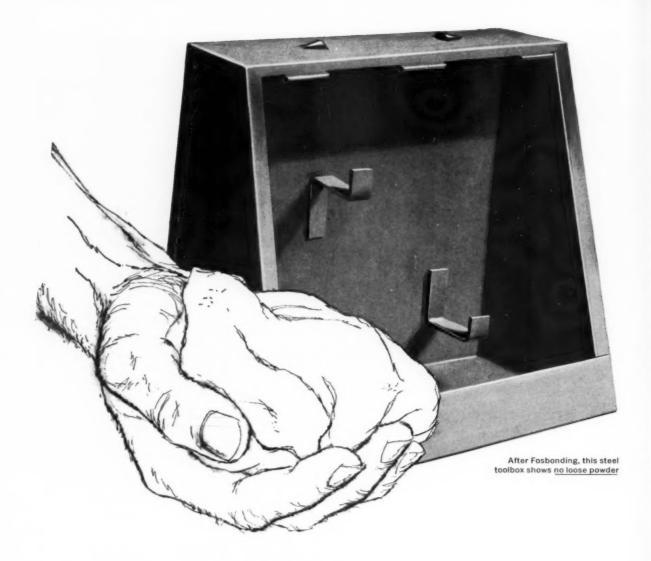
VOL. 13 · NO. 6

FEATURES MANUFACTURING STEEL CABINETS AT OLYMPIA..... 20 HOW YOU CAN BLACKEN STAINLESS STEEL 27 MEASUREMENT OF SPECULAR GLOSS OF PORCELAIN ENAMEL - AN ANALYTICAL STUDY . . . 30 THAT NEW CLEANING-PAINT FACILITY AT INSTITUTE OF APPLIANCE MANUFACTURERS PLANS BIGGEST CONVENTION IN HISTORY 41 PORCELAIN ENAMEL INSTITUTE MID-YEAR CONFERENCE AT CHICAGO DRAWS INTEREST..... 39 MERCHANDISING IS BIGGEST PROBLEM SPRING ARI MEET SESSIONS REVEAL. THEY BLAST CLEAN 220 WATER TANKS PER HOUR IN AUTOMATIC OPERATION. MAJOR ELECTRIC APPLIANCE GOAL SET FOR '57 AT NATIONAL ELECTRICAL MFRS. ASSN. MEET..... 57 INDUSTRY COMPETITION KEYNOTE OF GAS APPLIANCE MANUFACTURERS ASSN. MEETING 62 AIEE APPLIANCE ENGINEERS MEET SAFE TRANSIT SECTION. A REPORT ON PACKAGING OPERATIONS AT CORY CORP.'s FRESH'ND-AIRE PLANT.....ST-5 DEPARTMENTS THE FINISH SPOTLIGHT — Hoover Constellation 11 INDUSTRY MEETINGS 12 NEW SUPPLIES AND EQUIPMENT......79 NEW INDUSTRIAL LITERATURE 81 SUPPLIER NEWS









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Here's a truly dependable iron phosphate coating! Fosbond* 22 assures uniform, trouble-free phosphate protection of metal parts, cuts your finishing rejects to the bone. The balanced composition of Fosbond 22 prevents the highs and lows of ordinary phosphate films, and its superior cleaning power lets you clean and coat in one spray bath.

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Exciting developments are under way that could literally double the size of the Porcelain enameling industry in the next five years. A few of them are listed on the pointed ends of the arrows above. For information on any or all of them,

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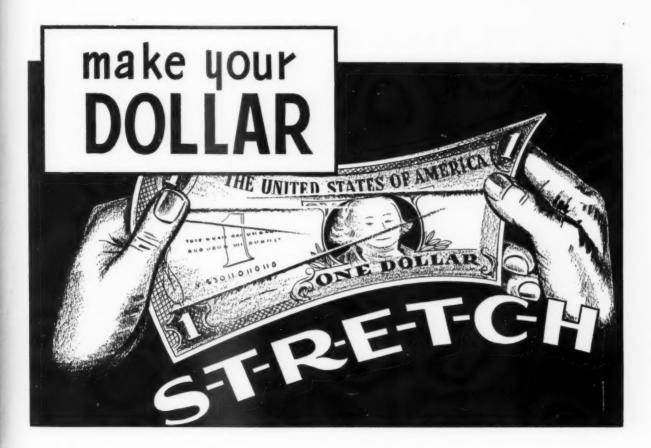
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Exterior of one of the two Circular Electrostatic Spray Enclosures. All Exhaust Duct is continuous around the bottom.



Exit end of Finish Baking Oven. In this installation the Dry-Off Oven and Finish Baking Oven are combined in one unit.

Compact MAHON SYSTEM Finishes 2000 "SLIMFOLD" Metal Closet Doors Per Day!

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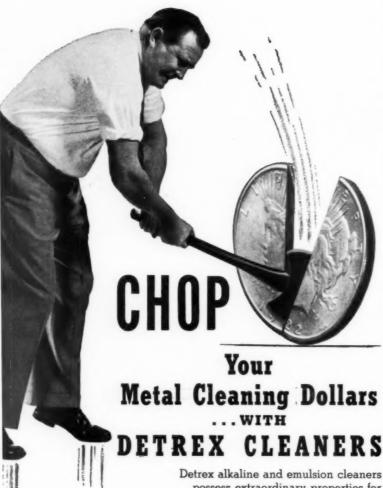
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EDISON ELECTRIC MEETING

Edison Electric Institute, 24th Annual Meeting, Atlantic City, N.J., June 4-7.

PLASTICS EXPOSITION

The Society of the Plastics Industry, Inc., 7th National Plastics Exposition, Coliseum, New York City, June 11-15.

AHLMA SUMMER MEETING

American Home Laundry Manufacturers' Association, Summer Meeting, Edgewater Beach Hotel, Chicago, June 14-16.

METAL FINISHERS MEETING

National Association of Metal Finishers, Annual Meeting and Fifth Management Seminar, Mayflower Hotel, Washington, D. C., June 17-18.

ELECTROPLATERS' CONVENTION

American Electroplaters' Society, 43rd Annual Convention, Hotel Statler, Washington, D.C., June 17-21.

ASME MEETING

The American Society of Mechanical Engineers, semi-annual meeting, Statler Hotel, Cleveland, June 17-21.

ASTM ANNUAL MEETING

American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 17-22.

HEATING & AIR CONDITIONING ENGINEERS MEETING

American Society of Heating and Air-Conditioning Engineers, Semi-Annual meeting, Shoreham Hotel, Washington, D. C., June 18-20.

SUMMER MARKET

Summer Homefurnishing and Appliance Market, The Merchandise Mart and the American Furniture Mart, Chicago, June 18-28.

NATIONAL HOUSEWARES SHOW

National Housewares and Home Appliance Manufacturers Exhibits, Auditorium, Atlantic City, N. J., July 9-13.



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The solution tank capacity is 300 gallons; tank temperature is maintained at 190 F., and the heated blow-off, 200 F. Up to 50 cubic feet of small miscellaneous steel parts are washed clean per hour.



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Solution tank capacity is 900 gallons; tank temperature is 180 F., room temperature blow-off. This heated rinse of 160 to 180 F., room temperature blow-off. This heated rinse of 160 to 180 F., room temperature blow-off. This heated rinse of 160 to 180 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off. This heated rinse of 160 F., room temperature blow-off.

In many cases, plant engineers are faced with serious limitations of available space for the installation of needed additional equipment. Meeting conditions such as these are not the least unusual to Peters-Dalton engineers. The right type washer CAN be designed, fabricated, and IN-STALLED by P-D when a layout of plant facilities is given, along with the specifications for the type washer wanted.

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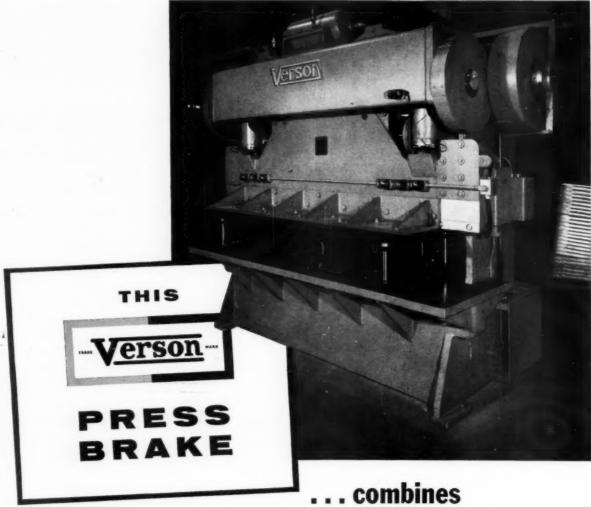
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multiple production operations for TEMCO



CATALOG B-55 gives design details and specifications of Verson Press Brakes. Write for your copy. This Verson Press Brake accomplishes in *one stroke* all the jobs that formerly required several operations. As manufacturers of a complete line of residential gas heating equipment, Temco, Inc., Nashville, Tenn., uses a Verson Model No. 308 Press Brake to gang punch and notch corners and holes in flat sheet steel parts . . . speeding the complete production process and reducing overall cost of operation. Flanges on the bed and ram give the brake unusual versatility and assure its easy adaptability to changing requirements.

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A high gloss enamel with excellent hiding and resistance to moisture and food stains. Available in white and colors, and offering outstanding color retention. Bakes to a hard, porcelain-like finish.

An ideal combination of resistance, color retention and beauty for refrigerators and other applications where finest quality enhances sales appeal.

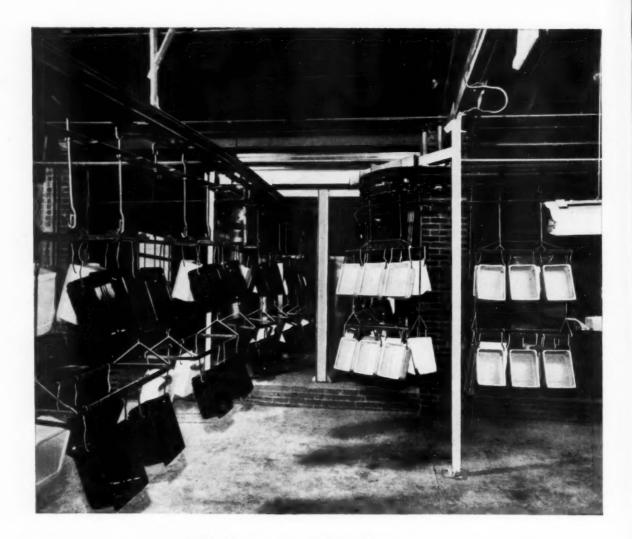


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Hang on lightweight Inconel

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For long run economy in this service, you can depend upon Inconel.

Within standard enameling temperature ranges (1475 to 1550°F.) and on up to the range where high temperature ceramic coatings are applied (1850°F. approximately), Inconel nickel-chromium alloy delivers excellent heat and corrosion resistance. It resists oxidizing and other corrosive conditions common in enameling operations.

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So, if heat and corrosion are creating problems with items of this type, see what Inconel nickel-chromium alloy can do. You can get more information by writing for "Keep Operating Costs Down . . . When Temperatures Go Up." It's free and a useful booklet to have. For detailed technical assistance, call on Inco's Technical Service Section.

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Manufacturing steel cabinets at Olympia

Here is the story of General Metalcraft's complete fabrication and finishing operation with details on their success with color.

by Howard E. Jackson



General Metalcraft, Inc., (Olympia Division), Olympia, Washington, is geared to make all steel kitchen cabinets. It fabricates 15 models of cabinets for built-in cooking equipment, for range models built by Hotpoint, Thermador, Norge,

L & H, Preway, Tappan, Martha Washington, Maytag, General Electric, Western Holly, O'Keefe & Merritt, Westinghouse and others.

Oven cabinets accommodate built-in ranges of varying dimensions by using a collar trim adapter designed to specifications of most manufacturers. Oven cabinets are supported by base cabinets to give broiler and oven a convenient height. Top cabinets added to oven cabinets provide added storage for bulky baking and roasting equipment. There are, also, two and four-element cooking top cabinets.

Olympic cabinet sinks are a second product, with 17 sizes and models available, with selection from single and double units in four sizes. Sink tops are steel finished with a white, acid resisting porcelain enamel. Features on all models include: chromed swing spout faucet sets with or without spray and aerator; stainless steel basket strainers with water shutoff; four nylon-roller drawers; fiberglass insulation and the like. Sink fronts are also available.

The third large group of products includes wall cabinets and base cabinets. Types are single or double doors, corner cabinets, revolving shelf units, one to four drawer units, peninsula assemblies, and semi-circular shelves for counter ends or snack bars.

Pioneered use of color

This company was among the first in its field color-wise. It offered cabinets in color (at additional cost) for a number of years, as well as in gleaming white, while the public was still warming up to color in the kitchen. Two years ago it began offering colored cabinets at the same price as white. Since then the swing to color has been great, and now color constitutes about 75% of production. Success has come with the coming of color, for sales have increased correspondingly with the demand for color.

General's management also foresaw the popularity of the built-in range three years ago and prepared for it well ahead of time. Today it ranks high in the western field, with distribution to the eleven western states, Alaska, Hawaii and Puerto Rico.

General Metalcraft's factory is complete and has one of the largest finishing areas of any plant in the Pacific Northwest. The raw material—16, 22 and 24 gage cold rolled steel—is shipped in by water, trucked to the plant, and stored in the shear room, where production starts.

Set-up of fabrication section

Sheared sheets are taken by hydraulic lift trucks to the fabrication and first assembly area. The fabrication section is simply and cleanly laid out. On one side is a row of 13 punch presses, 30 and 60 tons. They perform all notching and punching other than special set-ups.

Opposite to this row of presses are seven side by side power brakes; all bending is performed on these machines. From two to six persons are used per machine, which extends the machine and makes for more rapid production. Each person performs one operation with each stroke of the machine. Thus, the handling of the part is greatly reduced, since each person does but one motion . . . instead of one man doing half a dozen different motions.

Use of multiple-manned press operation

An example would be the 12-foot forming door liners . . . using four people. Each person performs progressive edge bending operations with each stroke . . . the first person feeding in the sheared-punched pieces to the first die in the brake, and the last person (the machine operator) also putting in an offset along one edge and stacking the formed part next to the machine.

A few special punch press set-ups should be noted to show good tooling performed by this company. One set-up is on a 30 ton punch press. In one stroke base cabinet sides are sheared, notched and countersunk holes made, eliminating all shearing and as many as seven notching operations, and with no loss of material, since the machine runs like a shear with no slug left as in much punch press work. There is a shear action in the center of the die, with punches on both sides of the shear. Material is fed through the machine directly from the bundles of steel. There is no stock loss on the length of strips.

A second set-up is that of two punch presses side by side and tied together by their controls. These are restricted to countersink punching . . . the part being placed in the die and hit by both machines simultaneously. A small punch press with hopper attached is utilized as a riveter . . . to rivet the nylon rollers onto drawer runners.

Unique 4-die press set-up

The most unique press is a 120 ton specialized machine which makes left and right male and female drawer runners using four dies in the set-up. One stroke of the machine cuts off, without scrap, notches and forms and air ejects the parts. Fingers on the back of the die are used to throw the runners out into a box. Each stroke makes a completed part . . . a rather complicated part since the edges are double formed.

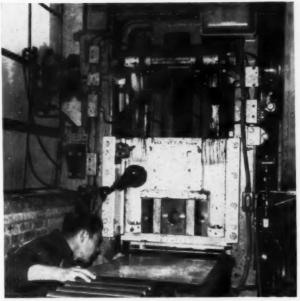
Since there are so many types and models of cabinets, with wide variety of sizes of pieces, all punch press and press brake work is run through as needed from day to day. There is no set production, day in, day out. Machines are changed as parts are needed. Long runs, however, are the order of the day where possible.

Material movement to assembly line

Formed parts move from the power brakes, or punch presses if no forming is necessary, to the end of the lines

finish JUNE . 1956

h



Four die set-up on this 120 ton punch press makes left and right male and female drawer runners. One stroke cuts, notches, and forms the steel cabinet piece in work.



Shearing steel for use in the manufacture of the line of cabinets at General Metalcraft is accomplished here in this shear room using a 6 foot and 12 foot shearer.

Pointing out finger, attached to die, used to throw former drawer runners out of punch press and into box. A completed male runner is shown in man's right hand.



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General Metalcraft, Inc., makers of all-steel kitchen cabinets, uses 1200-ft. of Zig-Zag in its Olympia, Washington plant.



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OLYMPIA CONTINUED

and into the first assembly section. The 90 foot assembly metal belt line is the first of two long assembly lines. Nine spot welders are grouped to one side of the line, 75 to 125 KVA, all with sequence controls. One portable spot welder is directly above the assembly line.

Some cabinet cases are finished on the line by use of the portable tongs; other cabinet cases are taken off for further welding, then put back on the line. This assembly line constitutes the final line for some units (as when doors are

put on cabinets and the entire unit is then painted and packaged) but most units are not completed here. The separate pieces first go through cleaning-painting-drying before they go on the final assembly line.

Conveyor set-up in finishing

Finishing starts at this point. Parts to be finished are hung on a 1200 foot overhead conveyor line equipped with hooks for holding the parts. This line, which is loaded at the end of the first assembly-welding line first dips down below floor level as it passes through a huge vapor degreaser, comes back up to its original level, then dips down through the floor to a lower level where the paint booths and final assembly line are located.

Note should be taken here of the conveyor line and degreaser. This line is unique, since all of its 1200 foot length is operated from a single 1½ hp power unit. Also, the company has rigged up an inexpensive lubricator to this line . . .



Staking in nylon rollers on female drawer runners is done on this small punch press. Hopper feeds in the nylon rollers used in this sub-assembly operation.



Multi-manned power brake line at the General Metalcraft plant. Notice how the material feeds from presses to brakes supplying smooth material flow to line.

a pneumatic oiler, to lube the track, utilizing a cylinder from a squeeze riveter. A trip on the track pushes the hand squeezer of the old riveter. This sprays each bearing momentarily as it goes by, three jets of atomized oil on each roller. Then it shuts off until tripped again. The line is oiled once a day.

Plant engineers create unique degreaser

The degreaser is noteworthy since the manufacturer said the company couldn't do what it has done! The company equipped the degreaser with dual-proportioning temperature controller which controls both the water jacket temperature and the steam supply. It varies both with variation in load to maintain a steady vapor level. The controller, you might say, senses change (vapor level fluctuations) so that there are no variations in vapor level and water temperatures. (Water temperature is kept at 120 degrees.) With the manual settings on the manufacturer's machine it was not possible to get close limits. Moreover, the installed controller eliminates the man who would have been needed to run the manually operated machine.

Eliminate hot-cold spots in vapor line

It might be explained that attempts to control the vapor level had been at the vapor line. Degreasing, of course, draws off fumes so there is variation of fluctuation in vapor line. There was too sharp a change of temperature by those first attempts, but in ranges two or three inches above the level there was a flatter temperature gradient, allowing the instrument to sense changes in the position of the vapor level.

A circulating pump keeps the cold water coming in moving fast enough through the jackets to hold an even temperature throughout the jackets . . . with no hot and cold spots.

After the overhead conveyor line dips down to the lower level the parts are first manually tack rag wiped. They then proceed by conveyor through the first of three paint booths, where they receive a vinyl wash coat (phos. acid) etching primer. The primer is kept in a 50 gallon pot, and one painter can keep up with the line at this point. Track speed is 11 feet per minute.

The conveyor then makes a U-turn and parts get a 20 minute air dry as the track returns to the next step. At the next stage two men are used to dry and blow-off the parts . . . only light sanding required for wash coat.

Continued on following page

OLYMPIA CONTINUED

The line then moves into the first of the two main paint booths. The paint storage-preparation room, incidentally, is a separate large, fireproof building. Paint, purchased by carload lots, is stored on the further side of this structure. The drums are rolled up a ramp to and through an opening in the wall and onto track-like racks inside. Here the barrels are left to come up to temperature before opening. The paint is reduced to spray viscosity with #4 Ford cup.

White paint is important since all parts, no matter what color, get undercoat with white, then finish coat. White paint is put in large vats and goes to and through the paint booths (first and final coats) by means of a recirculating system. Two pumps (one to each booth) are used. Pressure at the booths is set at 30 pounds. Agitation, of course, takes care of itself. The system runs 24 hours a day, 365 days a year.

Plan similar installation for color

While 50 gallon pressure pots are still being used for color, the company will set up a similar system to white for each color, as demand increases.

The company-made water wash spray booths (with air filters and guarded fans) each have heaters for even flow of the paint through the guns at 165 degrees. Each gun has its own paint pressure regulator. The first booth, for first coat, is 30 feet long, the second booth, for final coat, is 36 feet long. The final coat booth has a spare heater, to have the next color set up in advance.

All color coats are put on in the second booth. The 50 gallon pots now used are run into the spare heater . . . and everything is ready to go when the work comes through.

Jonquil, pine green and peach colors used

Jonquil, pine green and peach are the primary colors used. As they were believed to be the most popular colors in the field. The control of color (formula) is carefully held from one run to the next. The paint manufacturer sends in wet samples which are baked and checked against dry color standards.

Because of the variety of parts, spraying technique varies greatly. Suffice it to say the two men used in each booth have worked out a system to keep up with the line. All that was needed was to establish a pattern of painting according to the type of part or unit being painted. Spot checks are made of film thickness (1½ and 2 mils) by means of a magnetic coating thickness gage.

Parts pass through 180 foot electric oven

As the parts leave the second booth they pass through the outer wall and into a 180 foot long U-shaped electric convection oven. After leaving the oven, the parts pass inspection and then go to a take off area. The line then makes a dead return carrying the jig-hooks upstairs to start the cycle over again.

Parts taken off the line are put on the 160 foot long final



Wash coat primer operation begins as cabinets come from fabrication and assembly floor to lower level where they are first tag wiped, then wash coat primed in booth.

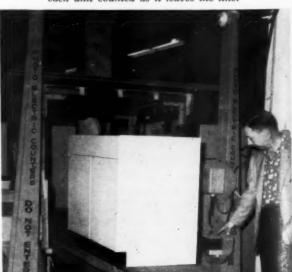
assembly rubber belt line. Sub-assemblies come to the line from each side. Some parts or units came off the paint line complete, no sub-assembly. Final inspection takes place on the assembly line. Near the end of that line the parts or units pass photo electric counters which note total items passing them. This figure is relayed by instrument to the office, to check against the tally.

Packaging in cartons takes place at the end of the line. A girl assembles necessary nests, and two men place the cartons directly over the unit to be packaged. Flaps are glued using large brushes, and tops are taped . . . the tapes coming from a package sealer which electrically cuts off the tape to pre-set lengths. The operator merely steps on one of two buttons to get the required short or long length he wants. This is much faster than hand cracking and tearing off tape.

Packaging and warehousing completed units

Packaged units are pushed down a roller conveyor to pallets, then routed to either the warehouse or waiting boxcars for shipment. Because of the popularity of colors, warehousing of finished cabinets became a problem. It also entailed too long a time cycle from receipt of order to finished product in special colors. So the company is now converting over to an inventory of fabricated parts (before spot welding assembly). Formerly the company had to work on a 45 to 60 day schedule. Now it is producing its all-steel kitchen cabinets on order in any color on less than three week schedule.

Electric-eye set up assures close control in finish line with each unit counted as it leaves the line.



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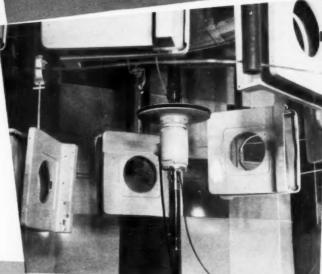
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How you can blacken stainless steel

Here is the why, where and how of blackening stainless steel. The details on introduction of design and pattern also given analysis.

by W. E. McFee . SUPERVISOR, PRODUCTION INFORMATION SERVICE, ARMCO STEEL CORPORATION



Why blacken a bright, attractive metal like stainless steel? The practice is not wide-spread but is worth knowing about because there are ap-

plications where it can be useful.

This permanent blackening process can be applied to both chromium-nickel and chromium stainless steels. It produces a smooth oxide film about one-hundred-thousandth of an inch (0.00001") thick. This skin has much stability and does not detract from the corrosion resistance of the metal base. While normally dull black in color, a degree of luster may be obtained by applying oils or waxes. The black finish does not tend to turn gray in service.

War use proved value

One of the first appreciable uses of the blackening process was in World War II where it was used to minimize brightness that an enemy could spot and take advantage of. One of these uses was the stainless steel gas chamber of the famous Garand rifle, where the blackened finish proved most satisfactory. The Navy also used it for many parts of the Bludworth Depth Sounder.

Durability of the finish is borne out by many experiences. Blackened stainless steel parts have been subjected to salt spray, submersion in sea water, alternate exposure to sea water and air, tropical sunlight and rough handling. Parts subjected to abrasion revealed some loss of color and dull glint, but did not reflect light to any noticeable extent. Parts not abraded showed no color change when compared with newly blackened parts.

Procedure for cleaning

As in other methods of finishing, cleaning is the first important step. Re-

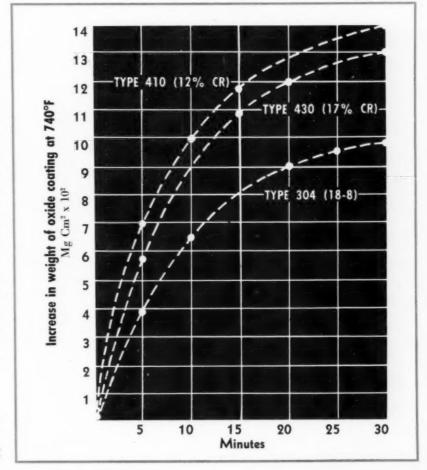
*Available by licensing arrangement on a royalty-free basis from inventor and patent holder. For further information, please write the editors. move all scale, grease and other surface contamination. Then dry the parts thoroughly and immerse in a molten bath of dichromates at a temperature of 730 to 750 F. Sodium dichromate is most satisfactory and economical. Time of treatment varies and depends on the number and size of the parts and the grade of stainless steel from which they are fabricated.

The accompanying chart shows that stabilization of the process takes place in about a half-hour. This chart gives coating weight curves for three of the most widely used types of stainless steel — Type 410, Type 430, and Type 304 stainless steel.

Simple rinse process

After treatment, remove the parts from the hot bath, cool to room temperature, and rinse in clear hot water. It is a simple matter to remove the adhering salts, since they readily dissolve in water. Final step is to dry the parts with an air hose, and they are ready for assembly and service.

Equipment is no problem because the blackening process requires little. All that is needed is a steel tank large



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Typical parts — of stainless steel — that have been fabricated in various ways and then blackened as detailed by the author are shown in the above photo.

BLACKEN STAINLESS CONTINUED

enough to contain the parts to be blackened, a satisfactory method of heating, and holders or baskets in which the parts are placed during immersion. Other than these, good practice recommends a cover and a stirrer, to help keep the coating uniform.

The blackening process may be operated intermittently. Cooling and reheat-

ing will not affect the dichromate, so long as the bath is kept below 785 F.

Stainless steel sheet parts cannot be designed blackened in the bath because no known masking material will withstand the high temperature. Yet decorative designs can be achieved by first blackening an entire part or panel; then using an electrolytic or abrading process to selectively remove the blackened finish where desired.



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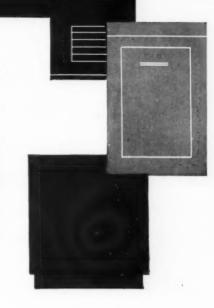
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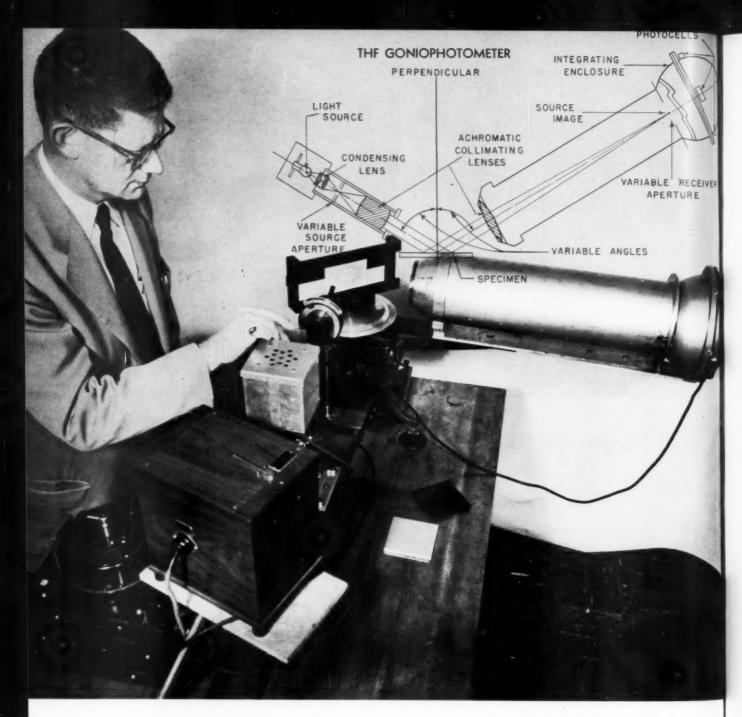




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Measurement of specular gloss of porcelain enamel

improvement in measurements result of standardized method developed by National Bureau of Standards. Here is a report on their observations. A SIGNIFICANT improvement in the stability and consistency of specular gloss measurements is made possible by a standardized method recently developed at the National Bureau of Standards. Intended primarily for application to porcelain enamels, the method establishes sizes and tolerances for the critical geometric dimensions of specular glossmeters. The resulting gloss scale, following a recommendation of the Porcelain Enamel Institute, closely approximates that of the widely used Hunter multipurpose reflectometer.

The task of determining the instrumental geometry required to duplicate the gloss scale of the Hunter reflectometer was undertaken by I. Nimeroff and H. K. Hammond, III, of the Bureau's photometry and colorimetry laboratory and J. C. Richmond and J. R. Crandall of the enameled metals laboratory. On the basis of their work, gloss tests for porcelain enamels have been included in the methods recommended by the PEI and the American Society for Testing Materials.²

EIVER

Gloss measurement in the past has been used principally to evaluate the resistance of high-gloss enamels to abrasion or chemical attack. Usually specimens are measured, before and after attack, on the same instrument in the same laboratory. The data thus obtained are useful for determining relative resistance to attack even though a standardized gloss scale is not used.

Need for standardization

Serious difficulties arise, however, when one attempts to compare readings of nonstandard glossmeters in different laboratories. A further impulse towards standardization has come in the last few years from the development of porcelain enamels in a wide range of gloss. Used mainly for architectural purposes, these enamels make heavy demands on uniformity of product and matching of components made in different plants.

What is specular gloss?

Specular gloss may be defined as the fraction of light flux reflected in the direction of mirror reflection (the specular direction) when the sample is illuminated by a parallel beam of light. In the case of enamels the angle of incidence (and reflection) is taken as 45°. When measuring the gloss of paints, an incidence angle of 60° is more common. If the fraction mentioned is multiplied by 1,000, the gloss is given in conventional "gloss units." For enamels, then, the specular gloss is the fraction of light energy, in parts per thousand, reflected at 45° when the specimen is illuminated at 45°.

Unfortunately, strictly parallel beams are not obtainable, nor can the light reflected in the specular direction be perfectly separated from that in adjacent directions. NBS studies have shown that disregard of the effects of angular spread among the incident rays (aperture of the source) and among the reflected rays (aperture of the receptor) is largely responsible for the discrepant result obtained with different glossmeters.³

Operation of practical glossmeter

In practical glossmeters a beam of light issues from a source, falls on the specimen, and is reflected through a rectangular window into a receptor where its intensity is measured either photoelectrically or in some other manner. The source then is oriented with its long dimension perpendicular to the plane of measurement, that is, the plane determined by a ray from the center of the source and the normal to the specimen at the point of incidence. Since the source is rectangular, the spread of light in the beam will vary in different planes through the optical axis. In this case it is customary to define the "aperture of the source" as the pair of angles that measure the spread in the planes perpendicular and parallel, respectively, to the plane of measurement. The long dimension of the receptor window is oriented like that of the source, and the "aperture of the receptor" is similarly defined as a pair of angles.

Problems of standardization

When the Bureau, acting on a proposal of the PEI Quality Development Committee, took up the problem of glossmeter standardization, an instrument devised at the Bureau in 1936, the Hunter multipurpose reflectometer, was already in wide use and provided a convenient scale of values. Although sufficiently accurate for relative measurements on a single instrument, the

Measurement of sixty-degree specular closs, by H. K. Hammond and I. Nimeroff, J. Research NBS 44, 585 (1950) RP2105. glossmeter section of the Hunter reflectometer was designed before the importance of accurate control of field angle was appreciated.

In general, therefore, its readings vary from one instrument to another. The problem then was to determine the geometric constants of a glossmeter that would provide a scale similar to that of the Hunter instrument.

At first the possibility was considered of making a direct measurement of the geometry of a Hunter instrument. However, the complexity of the Hunter optical system made such a determination unfeasible. Instead, a special goniophotometer was used as a glossmeter, and its source and receiver apertures were adjusted by trial to duplicate the desired scale and thus to establish the geometry requirements.

The goniophotometer used had been constructed for earlier studies.3 It is basically a device for throwing a beam of light onto a specimen at any desired angle of incidence and for measuring the light reflected in any direction in the plane of measurement. Light is provided by a standard headlight bulb. Its filament is brought to a focus in the plane of the source window, which thus becomes the effective source. Light from the window is collimated by an achromatic lens before falling on the specimen. The reflected light goes through another achromatic collimating lens which, if the specimen had a mirror surface, would form an image of the source in the receptor window. Then the light enters an integrating sphere in which three phototubes, connected in series, measure the total flux through the receptor window.

Constructed for 4-way control

Since space conservation was not a problem, the instrument was made sufficiently large to permit measurement of its components with high geometric Continued on Page 33

Table One

Recommended glossmeter apertures and tolerances, parallel and perpendicular to the plane of measurement, for 45° specular gloss of ceramic materials, PEI and ASTM test methods.

Measurement	Aperture an	d Tolerance
Plane	Source	Receiver
	degrees	degrees
Parallel	1.4 ± 0.4	8.0 ± 0.1
Perpendicular	3.0 ± 1.0	10.0 ± 0.2

For further technical details, see Specular glass measurement of ceramic materials, by I. Nimeroff, H. K. Hammonf, J. C. Richmond, and J. R. Crandall, J. Am. Ceramic Sec. 39, No. 3 (March 1956).

² Gloss test for percelain enamels, Bulletin T-18 of the Percelain Enamel Institute: Tentative method of test for 45° specular gloss, ASTM designation C346-54T.



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- anything that can
be made of steel sheets can be made of
wheeling

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SPECULAR GLOSS CONTINUED

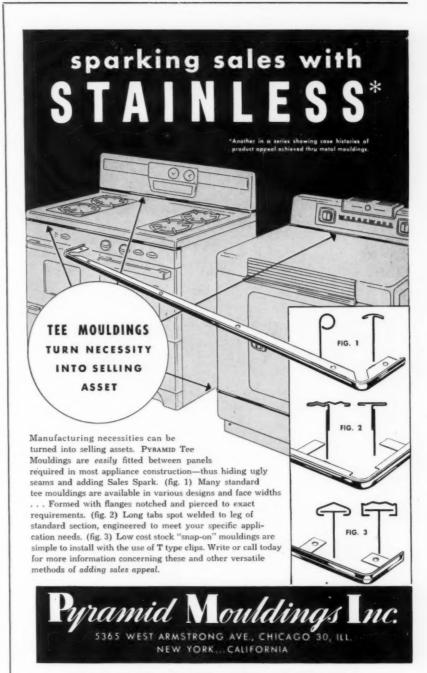
accuracy. It is so constructed that one can control accurately and independently (1) both dimensions of the rectangular source and receptor windows; (2) angles of illumination and view; (3) beam collimation; and (4) position of source image relative to the receptor window.

One of the Bureau's Hunter instruments was chosen for comparative study. With it the gloss of nearly one hundred specimens was measured. The instrument was set up in the usual manner with the gloss opening in a horizontal position and a sample of appropriate reflectance in position to furnish the comparison beam. The gloss scale was adjusted for linearity by inserting calibrated neutral filters in the gloss beam in front of the receiver window.

Two fundamental considerations guided the trial-and-error process for determining the angular size of the goniophotometer source and receptor (aperatures) that give readings in agreement with the Hunter multipurpose instrument. First, it was shown that glossmeter readings for highly diffusing (low-gloss) specimens are almost completely independent of the size of the source. Readings for such specimens are directly proportional to the angular size of the receptor entrance window, the cosine of the specular angle (in this case 45°), and the diffuse reflectance of the specimen. Thus a multipurpose instrument gloss reading for a highly diffusing specimen of known reflectance permits calculation of the angular size of the instrument's receptor window.

Second, readings for high-gloss specimens depend primarily on the size of the source relative to the receptor size. If the source is too large, reflected rays that should enter the receptor are blocked by the entrance window and a low reading results. If the source is too small, reflected rays that deviate too far from the specular angle are permitted to enter the receptor and a high reading results. Therefore, once the receptor aperture had been chosen, the trials for determining the source aperture could be restricted to high-gloss specimens.

To minimize the work, a criterion on scale duplication was set. This criterion required that for the 100 specimens selected the gloss reading obtained on the adjusted goniophotometer should to Page ST-11 →



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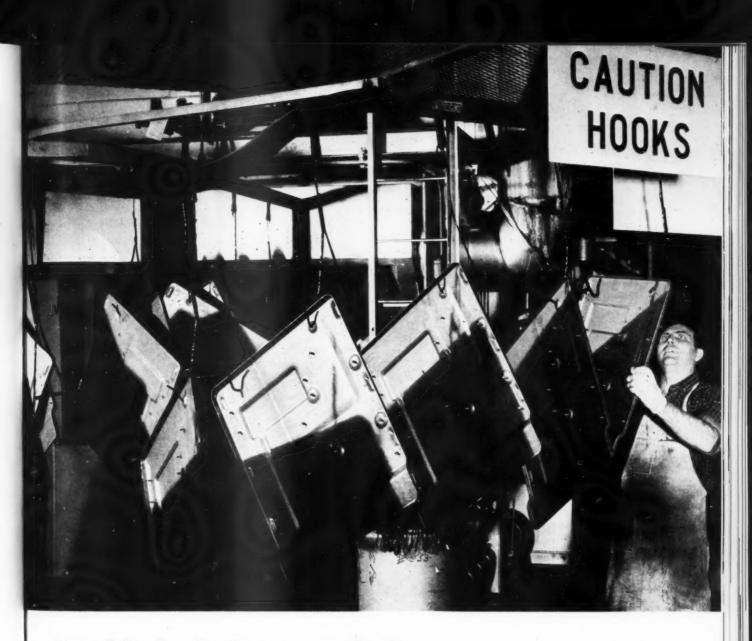
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Fresh'nd-aire's expanded Cleaning — painting set-up

at Grayslake, III., the Fresh'nd-aire division of Cory Corp. has up-graded their cleaning, painting set-up to keep pace with increased production

THE perennial problem of up-grading production speed with existing floor space in an expanding operation was solved readily at the Grayslake, Ill., operation of the Fresh'nd-aire Division of Cory Corp. Their cleaning, painting set-up first installed in 1953 when Cory Corp. expended some quarter of a million dollars to create the new facility at Grayslake, Ill. At that time a compact and adequate finishing department was established.

However, increased production de-

mands called for greater production than that available with the original installation so the recent re-engineering, expansion was initiated. A primary problem facing Lewis W. Seil, general manager of the operation, and the company engineers, was that the expanded operation had to be introduced into the same space that existed for the initial installation.

The present operation

These problems have been resolved and new facility has up-graded produc-

tion sufficiently to handle all the present demands as well as provide lee-way for the measurable future production increase foreseen by the company's management.

In the manufacture of the Fresh'ndaire room conditioners some thirtythree parts are provided by an outside supplier for use in the chassis for the unit. These parts are sub-assembled, if necessary for smooth flow, in the separate welding and fabrication section of the plant. This section is located in



Cleaning parts at the Fresh'nd-aire Division plant at Grayslake, Ill., is accomplished in the section shown in the above photo. The right conveyor is feeding the stampings into the first bath. The conveyor on the left is bringing back cleaned parts and the scene shows them leaving the tank-section after having been thoroughly dried.

FRESH'ND-AIRE CONTINUED

juxtaposition to the cleaning operation and paint rooms, materially reducing labor time and effort.

After being processed through this department, the parts are placed individually, or in groups as shown in one of the accompanying photos, onto the overhead conveyor line and the processing through the cleaning and phosphatizing section begins.

Details on cleaning

Parts are processed, via the monorail conveyor into the first section of the section where they are dipped in an alkaline detergent which is maintained at a temperature of 212 degrees Fahrenheit. The parts then continue via the conveyor and are successively dipped in the rinse tanks and in the phosphatizing tanks of the cleaning station. Temperature of the baths in both these operations are maintained at a 150-160 degree Fahrenheit temperature.

The phosphatized parts are then carried on the conveyor as it makes a complete "U" turn and enters the adjacent tunnel of the operation where the parts are dried by warm air as they pass through the section. As they come out, see above picture, they are carried on the conveyor which is elevated to free the ground area, and are carried to the flow coating section of the plant.

Application of prime coat

Here, they pass through a water spray booth where a black prime coat is applied to all stampings. This automatic painting operation replaces the earlier method where manual labor and spray guns were used in a comparable operation. The painted ware is then elevated to the top of the two floor high room where they are air dried before reaching the 600 foot long conveyor line where they will be assembled to form the air conditioner chassis and the final assembly of the unit begins.

Of note, to protect those parts which will be exposed to water, or contain water for a short time, they are given additional protection by means of manually spraying undercoating making them even further waterproofed.

Final paint operation

In the manufacture of the Fresh'ndaire room air conditioners, all processes on the assembly operation is accomplished on a 600 foot long waist-high roller conveyor set up. The completed chassis are given a final lacquer coat after the duct work for the evaporator and condenser, and the motor supports have been installed. This final coat is quickly dried as the units move along and the addition of the parts needed to make up the conditioner begun. Reports on the complete assembly operation -pictorially as well as editorially-appeared in the May, 1955 issue of finish under the headline "Production of air room air conditioners at Fresh'nd-aire". Details on the compact up-to-date packaging operations for the Fresh'nd-aire division appear on page 95 of this issue.

Permanent magnets eliminate scrap

TWO permanent magnets, strategically located in the press die, have resulted in the elimination of scrap and guesswork in a piercing operation on thin gauge steel at Hart & Cooley Mfg. Co., Holland, Mich.

The company, which makes heating and air-conditioning registers, grills and diffusers, uses an 85-ton press to pierce holes in register frame sections. The holes are for positioning the register fins in a subsequent operation. In the press work, from 14 to 24 holes are punched in each frame simultaneously at each cycle of the press—depending on the size of the formed frame sections which vary in length up to 22 inches.

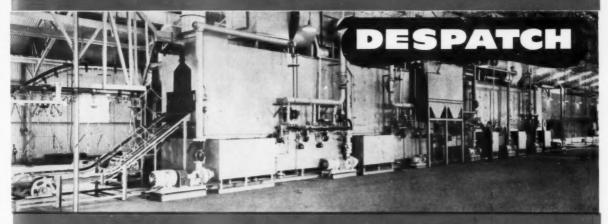
To do the work formerly, the operator picked up a frame section from a nearby totebox, positioned it against the die stop, then actuated the press with a foot pedal. If the alignment of the frame section in relation to the press punches was not always just right (due to vibration or other elements), scrap would result. It was bad enough to produce a scrap piece at this point, but the big damage came after man-hours were expended in welding the four sides of the register frame together and attempting to install the fins in mis-aligned holes -resulting in scrapping the whole assembly.

In an effort to overcome the situation, Hart & Cooley's production engineers, working with a supplier of magnets, re-designed the press die to hold two horseshoe-shaped magnets.

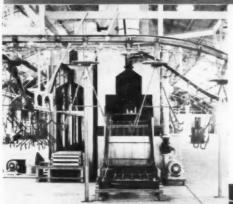
The magnets used were of the Alnico 5 type with a rated pull of 25 pounds against the proper steel keeper. These were mounted and clamped in the die, encased in non-magnetic blocks of fiber material. In other words, the whole magnet was insulated from the steel die except for the ends facing the die stop.

In the operation today, the press operator simply positions the steel frame against a stop at the left end of the die. The pull of the magnets does the rest—snapping the part tightly against the die automatically, in perfect alignment.

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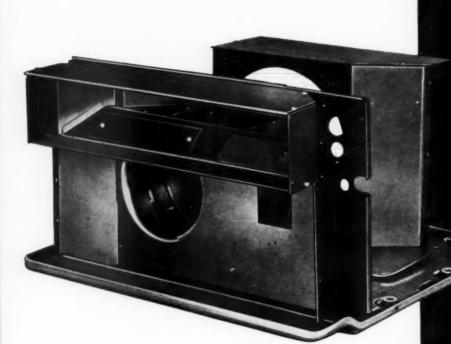
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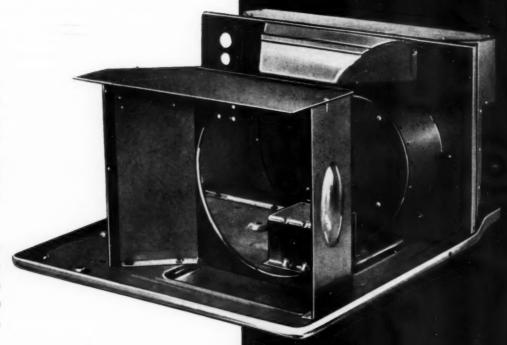


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Color and cost topics of PEI meeting

mid-year divisional conference at Chicago stresses problems of color, looks into plant operating costs and problems of financial management

THE Porcelain Enamel Institute held its Mid-Year Divisional Conference at the Edgewater Beach Hotel, Chicago, on May 16 and 17. The morning of Wednesday, May 16, was devoted to the Sign Division while the luncheon and afternoon session covered the problems of "general enameling." The Architectural Porcelain Enamel session occupied all of Thursday, May 17.

Subjects considered by the Sign Division were a sign lighting program, policy on sign storage, guarantees, color stability (weathering tests) and industry statistics.

Featured speakers at the general enameling session included Glenn Hutt, Ferro Corp., president of the Porcelain Enamel Institute; F. D. Danford, treasurer, Armco Steel Corp.; and W. B. Gilmour, Inland Steel Co. and chairman of Commercial Research Committee, PEI.

Color under study

"Color from the Porcelain Enameler's Point of View" was discussed by W. T. Porter, Porcelain Metals Corp. of Louisville, and H. F. Russell, Ingersoll Products Div. of Borg-Warner Corp.

"Cost System Fundamentals" were covered by Albert H. Hinkle of Ernst and Ernst. "Industry Cost Systems" was the subject of an informal "How We Do It" discussion by J. W. Vicary, Ervite Corp.; A. D. Shaver, Bettinger Corp.; H. R. Spencer, Jr., Erie Enameling Co.; and H. A. Ringelberg, Challenge Stamping & Porcelain Co.

Signs of the times

The producers of porcelain enameled signs set a bad precedent many years ago in setting up a 10-year guarantee against fading and against defects in workmanship and materials, the group was told. While other products are purchased regularly on guarantees of three months to one year, the sign people are out on a limb with the 10-year guarantee.

The PEI is conducting tests at the Bureau of Standards in relation to fading with Tests including 15-year weathering and accelerated testing methods, it was pointed out. Representatives from aluminum producers were present at the Sign Division meeting in addi-

tion to the usual steel representatives, an indication of increasing interest among aluminum producers in porcelain enamel as a finish and, specifically, in porcelain enameled aluminum signs, it was pointed out. A plea was made for "standard colors" from quantity buyers so that all suppliers could furnish the same color, and discussed by the group.

"Philosophy of volume"

"Sound Financial Management in a Growth Industry," was presented by F. D. Danford, treasurer, Armco Steel Corp.

"The Federal Reserve Board index of production of durable goods stands at 155 for 1955. Predictions are that by 1975 this index will reach 290, or an increase of 87 per cent in 20 years," he pointed out. "This compares with a previously quoted figure of 50 per cent increase in gross national product. The reason for the discrepancy is economists figure that, with higher incomes, more money will be spent for durable goods . . . "

"What constitutes an adequate profit?", Danford asked. "I believe it should be such that it yields a fair return on the capital invested plus a balance for expansion of equipment and working capital. Also, in figuring the fair return on invested capital, the amount of this capital should probably be doubled. In other words, due to constant inflation, depreciation rates are hopelessly inadequate to replace the buildings, machinery and equipment as they become worn out or obsolete."

"Profitless prosperity"

He referred to a survey of some 100 financial reports of metal products manufacturing companies which showed the following profit picture: 40 per cent of the companies lost money; 30 per cent broke even; and the remaining 30 per cent made some measure of profit. Danford referred to this picture as "profitless prosperity." In other words, he said, the companies had no complaint about the volume of business they were enjoying but they weren't making any money. It was his stated belief that one of the major factors contributing to this situation was improper pricing.

"It seems," said Danford, "that too

many users of steel were afraid to pass along in their prices the increase in raw material costs they experienced in the summer of 1954 and the summer of 1955... They are still holding to what I call the 'philosophy of volume'."

I call the 'philosophy of volume'."

In referring to the immediate future of steel, he said, "Everyone takes for granted that steel will grant a healthy wage increase next month (June) and I can assure you that it will promptly be converted, plus 100 per cent to cover the increases we know we will have in all other costs, into an increase in prices . . . I am afraid we are going to continue to have some measure of constant slow inflation with us for a long time to come, and I think we must make provision in our business planning to offset its effects."

Color and the porcelain enameler

In his discussion on color, W. T. Porter asserted that production was all keyed to white. Consumer demand changed this so that we now produce white and color or lose the account.

Large volume production runs in color present no special problem, he said. It is the small quantities of many different colors run intermittently which increase operating cost.

Some of the factors affecting plant operating costs, he asserted, were (a) color matching, (b) more supervision, (c) expanded inventories, (d) increased obsolescence of materials, (e) storage space tie-up, (f) increased burden of management and plant management, (g) increased millroom costs, (h) better sprayers required, (i) problems in firing — time and temperature control.

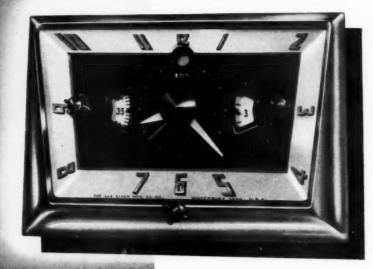
Suggested plant procedures

"Color has been run since late 1952," H. F. Russell pointed out. "There were then four colors. Now there are ten."

Plant procedure and sequence he suggested were (1) time—one week advance notice; (2) material—check storage samples, develop compensating mill additions when necessary; (3) run test plates with production every one to two hours; (4) conveyors, tools and spray booths cleaned before and after each color run (1½ to 2 hours charged against production for clean up); (5) one specific color is run one shift every to Page 104

Advanced Design Lux

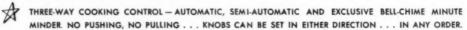
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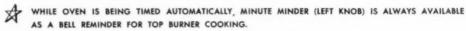
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Stage set for biggest-best IAM convention

24th annual convention and exhibit of the Institute of Appliance Manufacturers set for June 4-6 at Cincinnati's Netherlands Plaza

THE biggest show in IAM history is growing into shape for the 24th annual convention and exhibit of the Institute of Appliance Manufacturers at Cincinnati, June 4-6. Jam packed with top speakers and a wide array of products, convention planners have set their goals to gain more visitors and make a new convention record.

Will have exhibit preview

A preview of the exhibits in the Netherlands Plaza Hotel will be held June 3 with the exhibit rooms on the third and fourth floors open from 4 to 6 p.m. Some 75 suppliers to the industry will have booths displaying their products and services. An informal get-together for early arrivals is also planned. Regular hours for the exhibits during the convention will be from 9 to 5 on June 4-5 and from 9 to 1 on June 6.

The convention proper starts off Monday June 4 at 10 a.m. with the first meeting of the 1956-57 board of trustees and the election of new officers. Committee reports and institute policy decisions will be studied at this time. Also on the agenda is a program for merit awards which is seriously being contemplated.

Sales/advertising workshop

Monday afternoon the general session gets underway with S. B. Rymer, Jr., president of Dixie Products, Inc., and secretary-treasurer of the institute, serving as chairman of the Sales and Advertising Workshop.

A panel of industry experts are ready to discuss problems on market development, retail outlets, service programs—and how to make them profitable—, the education of salesmen, the trade-in situation and the problem of determining a sound advertising program for the medium-sized appliance manufacturer.

As the sales-advertising group goes into session the shop-talk session will be going on with Newark Stove Co. President, F. H. Guthrie, executive vice president of IAM, as chairman. The growing understanding of the vital importance of the supplier as part of the manufacturers' thinking is given full recognition in this session with a meeting planned to give value to both supplier and manufacturer.

Questions on labor, the electronic devices being developed and their use, the growing automation and the possible ways to have supplier aid in creating

popular demand for major appliances will be under discussion by a panel group at this session.

Tuesday morning session

W. Frank Fisher, vice president of the Bengal Range Division of John Wood Co. and IAM president, will open the Tuesday morning session with a general welcome and introduction. J. C. Doyle, general sales and merchandising manager for Ford's Special Products Division, will speak on "What Is The Most Important Trait of A Good Manager?"

"Where are We? How Did We Get where We Are? and Where Are We Going?" will be the topics of the second speech with Martin R. Gainsbrugh, chief economist of the National Industrial Conference Board, presenting the broad picture as it effects the member manufacturers and their companies. Following his speech, the general luncheon will be held at 12:30.

Gas & oil division meetings

Tuesday afternoon the Gas Heating Division and Oil Division will hold simultaneous meetings starting at 2 p.m. Dearborn Stove Co. Vice President C. D. Allison will chairman the Gas Heating Division session, which will include a round-table discussion on topics such as dealer and jobber inventories, the suggested program of planned obsolescence (See the remarks by Brooks Stevens of Brooks Stevens Associates in the report on the Appliance Engineers Technical Conference elsewhere in this issue), as well as a study of certain codes and other subjects.

In the Oil Division meeting, Chairman W. H. Hohmeyer, manager of sales research and promotion for Detroit Controls Corp., and R. W. Sloane, manager-sales engineering for A-P Controls, will report on the national distribution of a Service Man's Handbook on Vaporizing Oil Burners and a brochure including testing standards, statistics and safety rules. The group will also review, the heating equipment sales picture and study certain municipal ordinances.

Manual a big success

Also on the agenda will be a study of the division's Statistical Program. An important feature of the session will be the report by the division's technical

committee on the public relations work carried out this past year to correct misstatements frequently made about the dangers of oil burning equipment. (The program, spectacular in performance, also included the preparation and publication of a manual on proper installation and service that has brought favorable report from fire marshalls throughout the nation. With thousands of copies already sold, the committee has now been asked to grant permission for translated issues to be published for two foreign countries.)

Tuesday's activities will close with the annual reception and banquet.

Kitchen Planning Session

Wednesday morning activities will start off with a punch with the Kitchen Planning Session, chairmanned by Roper Executive Vice President J. H. Makemson, which includes audience participation in a program touching on merchandising of complete kitchens by the average appliance retailer, standardization of dimensions, color standardization and possible effect from "Operation Home Improvement".

The meeting will have broad interest, particularly for manufacturers of free standing and built-in ranges, refrigerators, freezers, laundry equipment, water heaters and kitchen cabinets.

Washington columnist to speak

At the Wednesday general luncheon, set for 12:30, Roscoe Drummond, Washington columnist for the New York Herald Tribune, will be heard on the topic "What is The State of The Nation?" Drummond, internationally known for his reporting and news scoops, is sometimes called by his news colleagues "Mr. Washington Correspondent", which would make his topic for the luncheon a top-interest event.

How good a meeting is it going to be? Observers of the program and planning state the convention and exhibit has so much in the way of interest that many manufacturers who never attend the conventions will be on hand. And after they're there, the institute officers, headed by President Fisher, will be on hand to welcome them, renew acquaintances and insure their saying "We're glad we came". finish editors, of course, will be on hand, just as they've been from the earliest meetings, and a report on the convention-exhibit will be a high light of the July issue.



Retiring ARI President
James Emmett was presented a service plaque
honoring his service to
the organization while
serving as its president.
Presentation of the award
was made by Servel V. P.
A. J. DeFino at the Tuesday general session.

Spring ARI meeting sessions show merchandising biggest problem

predict continued gains in sales. Lawler elected president for 1956. "Merchandising must be realistic and not historical" ARI members are warned.

by Dana Chase . FINISH EDITOR AND PUBLISHER

THE Air-Conditioning and Refrigeration Institute, representing 172 member manufactures of air-conditioning and commercial and industrial refrigeration equipment, met at the Homestead, Hot Springs, Va., May 6, 7, 8 and 9.

If leading economists are correct in their estimates for 1956, air-conditioning and refrigeration equipment should sell in good volume. Air-conditioning should increase in volume irrespective of slight changes in overall business due to the extremely low saturation point.

At meetings of the separate ARI sections it was evident that the industry has its engineering and production problems, but like other sections of the appliance and metal products field, merchandising looms as the big question mark and problem.

Worthington executive elected

Matthew M. Lawler, vice president of the Worthington Corp., Harrison, N. J., was elected president of ARI at the annual board of directors meeting at the Homestead on May 6.

He succeeds James Emmett, Jr., of the Jas. P. Marsh Corp. of Skokie, Ill. During the past year, Lawler was vice president of ARI and has served as treasurer of the organization. Lud Emde, president of Temprite Products Corp., of Birmingham, Mich., was elected vice president, and C. E. Buchholzer, president of the Airtemp Division of Chrysler Corp. was named treasurer.

Four new board members

The three newly-elected officers, together with Emmett, the past president, and ARI Managing Director Geo. S. Jones, Jr., will make up the organization's executive committee during the coming year.

Four newly-elected members of the ARI Board of Directors took office at the meeting. They were D. P. Barrett, general sales manager of Davison Chemical Co.; Rudy Berg, vice president of Copeland Refrigeration Corp.; Charles T. Lawson, executive vice president of

Kelvinator; and D. R. Moerick, vice president of Controls Corp. of America. Matthew Lawler, newly-elected president, and Lud Emde, vice president, were also named as directors-at-large. Members of the board of directors,

Members of the board of directors, continuing to hold office are C. E. Buchholzer, Chrysler Airtemp.; J. A. Dugan, Bundy Tubing Co.; E. B. Dunphy, Acme Industries; James Emmett, Jr.; C. V. Gary, Henry Valve Co.; Walter A. Grant, Carrier Corp.; G. K. Iwashita, General Electric Co.; Geo. S. Jones, Jr.; E. B. Maire, Penn Controls, Inc.; M. G. Munce, York Corp.; R. J. Powell, The

ARI Managing Director George S. Jones, Jr., outlined the developments of ARI and made a pertinent analysis of the Assn's activities during one session.









Marley Co.; Austin Rising, Whirlpool-Seeger Corp.; L. W. Smith, Frigidaire; and H. F. Spoehrer, Sporlan Valve Co.

Plaque to Emmett

At the annual meeting general session on Tuesday, May 8, James Emmett, retiring president, stressed the importance of ARI work on industry standards. The industry has established standards for practically every product manufactured, he stated, with 37 published standards and an additional 13 proposed.

During the meeting A. J. DeFino, vice president of Servel, Inc., the preceding year's president, presented Mr. Emmett with a service plaque.

George Jones, Institute managing director, stressed the importance of industry support for both standards and statistical programs. He outlined the important association activities.

After accepting the gavel as incoming president, Mr. Lawler discussed the three years of "welding" the present organization. (ARI is a combined group formerly represented by REMA [Refrigeration Equipment Manufacturers Associ-

ation] and ACRMA [Air Conditioning and Refrigerating Machinery Association] and reported a healthy increase in membership, representing an estimated total of 90% of industry production.

In pointing to the desirability of strong industry cooperation, he said, "Any industry that cannot police itself from inside will be policed from outside".

The economic outlook

"Consumer credit, mortgage debt and bank credit have been expanding at rates which cannot be sustained", according to Dr. Jules Backman, Professor of Economics, New York University, whose subject was "The Economic Outlook as It Affects The Air-Conditioning Industry".

"In 1955 consumer credit rose 20.2%, bank credit 17.3% and mortgage debt, 17.2%", Dr. Backman said. "This rate of credit increase compared with a rise of 7.4% in gross national product and with the normal rate of increase of about 3%. The result has been pressure on prices. Further increases in credit

ARI banquet speakers table held places for the following (left to right) Mr. and Mrs. A. J. DeFino, vice president and general manager of the Air Conditioning Division of Servel (immediate past president of ARI); Mr. and Mrs. M. M. Lawler, Vice president of Worthington Corp. and incoming ARI president; Mr. and Mrs. James Emmett, Jr., vice president and sales manager, James P. Marsh Corp. (retiring president); Mrs. Jud Emde, James E. Gheen, guest speaker for the banqueteers; Mrs. George Jones, Jud Emde, president and general manager of Temprite Products Corp., (vice president of ARI); Miss Mary Jane Stewart, assistant director of ARI; and ARI Managing Director George S. Jones, Jr. Inset photo is of President-Elect Lawler speaking at an earlier session.

have taken place this year. Since last June the comprehensive index of wholesale prices has risen by 2.3%, but industrial prices have risen about 5%. A further rise in these prices is now threatened as a result of a new round of wage and other labor cost increases. If these trends are not reversed, a further rise to Page 44



SECTION MEETINGS HELD DURING SPRING SESSION

SPRING ARI CONTINUED

in interest rates and a tightening of credit will be necessary".

"Despite the anticipated small budgetary surplus, this would not be the time for a cut in taxes. Any budgetary surplus should be used to pay off public debt. A reduction in taxes would add to the inflationary pressures. With a continuation of a resistance credit policy and no new tax cut, there is a strong probability that further increases in the price level will be held within modest limits", Dr. Backman stated.

He forecast that "On balance, the expansionary and negative factors in the national economy appear to about offset each other. The outlook is for a continuation of the general level of business activity at about recent levels.

"New home construction starts were 15% lower than last year for the first quarter".

"Farm spending is expected to be down slightly in 1956 compared to 1955".

"A declining automobile market affects many other industries".

"Government measures can prevent a repetition of the "early '30's" but lesser recessions can come".

If the credit screw is tightened further, some curtailment of economic activity — possibly a 'gentle decline' must be considered a strong possibility. However, in dollar terms, a somewhat more favorable picture will be shown . . .

The upward surge in business spending for plant and equipment is the most potent expansionary force expected to operate in the second half of 1956, the New York University professor stated. Other favorable factors include increasing volume of nonresidential construction and continued expansion of state and local government expenditures. The creeping advance of industrial prices is expected to be given a further push when prices are increased to pay for higher wage costs in several important industries. These rising prices stimulate advance ordering and some inventory building and hence, add to the expansion in the economy.

Air conditioner future

Said Dr. Backman, "The short term and long term outlook for the air conditioning industry is very bright. Currently, only one home out of twenty uses air conditioning in one or more rooms (only 5 to 5½% saturation even when considering single room installations). The industry faces a major period of expansion in volume as more and more homes are air conditioned. The development of units to take care of year round temperature control has provided an important stimulus to sales. New housing without air conditioning experiences a competitive disadvantage.

A rapidly-growing number of factories and offices have been discovering the very favorable impact on labor productivity of air conditioned space. Accordingly, sales to industrial users also will continue to rise sharply. A favorable outlook for disposable income for the remainder of 1956 provides the background for expanding sales of air-conditioners this year—weather permitting".

The discount house

Under the subject heading "Automation in Marketing" Eugene B. Mapel, vice president of Barrington Associates, New York Management Consultants, told ARI members that "There are a great many more possibilities for automation in marketing than in manufacturing".

According to Mr. Mapel, "Giant new markets have been created by the times—not by the marketing methods. The discount house is a 'symptom' of the inadequacy of present marketing procedures. The franchise dealer is dying because he is not keeping up with service requirements. List prices are largely a 'myth' and many discount houses are upgrading their service and methods of selling to compete with department stores and appliance dealers. Hitch your

to Page 46 →



SPRING ARI CONTINUED

business to the present type of dealer, and you are hitched to a dying (marketing method)."

Questions and comments for management and sales management presented by speaker Mapel included: "Is the dealer performing for you the function that you expect? - If not, take a look at your distribution system. We may see a 'direct to the consumer' automobile-how will you market your product without salesmen? The greatest weakness in sales management today is the dependence on 'manpower' to move products to the market. Re-examine your problem in the light of the consumer and not the competitor. The manufacturer must adopt the philosophy of the retailer to live. Merchandising plans must be realistic and not historical. Price will not be the factor in the sale of products that it has in the past".

In closing, Mr. Mapel told his audience that as manufacturers they have the responsibility of educating the distributors and/or dealers in business principles such as inventory control, costing, estimating and pricing—so that they can stay in business as a part of the distribution picture.



Fred Kaths and A. S. Bross, O. A. Sutton; Parker Finch, Hunter Fan & Ventilating; Dan Mull, O. A. Sutton.

J. B. Ogden, Whirlpool-Seeger; Wm. Kronauge, Kelvinator Div.; Austin Rising and Lincoln Larkin, Whirlpool-Seeger.





R. A. Halla, York; R. M. Locke, Minneapolis-Honeywell; C. L. Hewitt, A. O. Smith; John Gilbreath, Westinghouse.



Wm. Cott, Westinghouse; M. T. Bard, Airtemp Div.; John Dube, Alco Valve; R. H. Jones, General Electric.



E. Gammill, Carrier; M. M. Lawler and E. R. Michel, Worthington; W. J. Osborn, Keeney Publications.

J. A. Rishel, Jr., Amana; W. R. Eichelberger, Acme Industries; H. B. Abbott, American Standard; R. B. Stotz, Airtemp Constr.



D. S. Sterner, Gen. Controls; A. L. Schildhammer, Air Con. & Refrig. News; P. E. Barnett, Jas. P. Marsh; F. Weldon, Gen. Controls.



Howard Scaife, Hotpoint; Harry Morrison, Curtis Mfg.; Robert Gray, Miller Brass; John Ammel, Kelvinator Div.



D. C. McSorley and R. J. Thompson, du Pont; C. T. Lawson, Kelvinator Div., American Motors Corp.



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● When tanks are lined with McDanel Porcelain or High Density Lining the contents are guaranteed safe storage until used. McDanel Lining Brick does not contaminate or alter the formula of the tank's contents. It has excellent resistance to wear, corrosion and chemical action. Fins or other protrusions from inside walls offer no installation problem. McDanel Lining Brick sets easily around the sides and bottom of the tank. Broken joint installation provides custom fit for every size tank.



facturers of appliances.

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50

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(patent pending)

BETTER PERFORMANCE --MORE CONSUMER SELLING FEATURES

- Flat surfaces in evaporators permit direct contact with food packages, ice cube trays and other items providing heat transfer by conduction and completely eliminating any insulating air spaces. This aid to faster freezing also means a bigger consumer selling point for refrigerator and freezer manufacturers.
- Flat surfaces make it easier to defrost . . . improve drainage of water and other liquids . . . permit faster, easier, more thorough cleaning. More sales features!
- Flat surfaces permit small jars, bottles, cans and other containers to rest on smooth surface without wobbling or tipping, thus reducing possibility of spillage . . . still another good sales point.
- Flat surfaces mean no high points to concentrate wear on critical tube surfaces.
- Tubing right in the sheet routes refrigerant exactly where needed—no loss in conductivity. Tubed Sheet *One-Side-Flat* (two sheets of aluminum metallurgically bonded together so that the heat transfer passageways are in the sheet) is flat on one side and has the built-in tubing pattern on the other side.

NEW FLEXIBILITY OF DESIGN

 Reynolds new Tubed Sheet One-Side-Flat is the only sheet with one flat side providing integral tubing in any parallel or non-parallel patterns no matter how complex! Almost any tubing pattern that can be drawn can be quickly and economically produced in Tubed Sheet with practically unlimited circuiting possibilities.

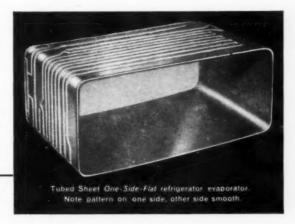
- Passageways can be flat or oval; large or small; spaced close together or apart.
- Redesigns are simplified, can be made quicker.

GREATER ECONOMY

- Eliminates metal used for evaporator tubing, accumulators and receivers.
- Many connecting and assembly operations are eliminated.
- Additional tubing lengths add nothing to cost.
- · Redesigning costs are much less.

MORE ATTRACTIVE PRODUCT

- Can be embossed in a decorative pattern or left smooth.
- Can be color anodized in any color desired to match color-styled refrigerator and freezer interiors.



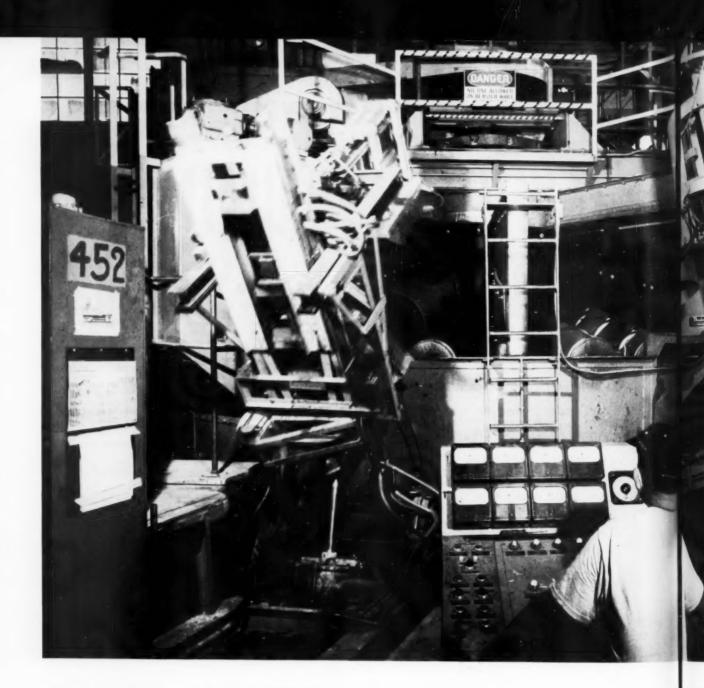
See "Frontier", Reynolds exciting dramatic series, Sundays, NBC-TV



For details on Tubed Sheet One-Side-Fiat, contact your nearest Reynolds Office or write Reynolds Aluminum Fabricating Service, 2054 So. Ninth Street, Louisville 1, Ky.

REYNOLDS ALUMINUM FABRICATING SERVICE

BLANKING • EMBOSSING • STAMPING • DRAWING • RIVETING • FORMING ROLL SHAPING • TUBE BENDING • WELDING • BRAZING • FINISHING



They blast clean 220 water tanks per hour in auti-

Down at Kankakee, Ill., the Permaglas Division of A. O. Smith Corp., has installed a "merry-go-round" cleaning set-up for top economy and superior results.



A REPORTED \$750,000 was needed to design and develop the new look in water heaters at A. O. Smith Corp., Permaglas Division, Kankakee, Illi-

nois. And from observations, sales reports and customer acceptance the money was well spent. But, engineers being what they are, developments to gain back that expenditure in savings started even while the development money was being spent, company engineers are proud to say. One example of improving job operation — while decreasing cost — is the imagineering that created the automatic blast cleaning set-up now in operation.

The photo above and the detailed drawing on the opposite page tell the story — show the double armed unit in action. It is a marvel in adaptation of ideas and necessity to blast cleaning of peculiar shapes. Step by step operation of the unit is shown in the photo sequence report on the following page.

The details on how this unit works



tain constant intervals to start the cycle. Actually, the man at the panel is armed with the responsibility of visually checking the control mechanism to assure continuing smooth operation.

A vital part in the automatic operation of this "blast cleaning merry-goround" are the magnetic chucks used in the handling devices of the machine. The magnetic chucks are moved and positioned by control features that were specially designed by A. O. Smith engineers for this particular operation.

Problems engineers encountered

When this development got underway, the problem was one of designing equipment that would precisely load the water tank shells in a cradle of the special machine. Only the upper one half of the shell periphery was accessible for handling mechanism. Moreover, the smooth cylinders, plus the necessity to prevent any scratching or marring of any kind, compounded the problem.

Those problems were resolved in a highly satisfactory manner, and the unit is now operating in the following manner.

Shells, earlier fabricated of 10 to 13 gauge steel, with top heads assembled, are received via conveyor at the staging platform of the blasting machine. Here they are manually taken from the conveyor and moved into position on the loader elevator of the blasting machine's loading arms. In each cycle the elevator ascends about 3 feet, and the magnetic chuck lowers into position.

When the chuck is a fraction of an inch from the shell, energy is applied, and the shell is pulled firmly into the "V" face of the loader arm where it is held securely in place by the magnetic power.

Then the elevator drops clear, and the loading mechanism, moved by pneumatic cylinders, raises and positions the shell in the machine cradle a fraction of an inch above the rollers.

The chuck is de-energized, and the shell drops free into the open station to begin its circle tour through the blast clean operation. Then the loading mechanism returns for the next cycle as the 10-station blasting machine, said to be the largest special machine of this type ever built, takes over.

Abrasive wheel set-up

Probably the clearest picture of the cycle operation in the blasting machine can be obtained by a careful perusal

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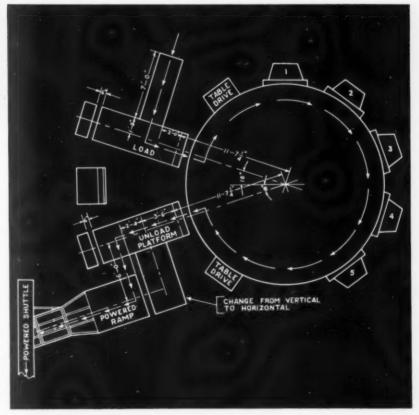
photo

page.

are as interesting, however, as the unit itself, visitors who have looked into the operation report. It is a lesson in automation.

Designed for automatic operation

There are eleven machines on this special blasting machine and, except for one operation at the central control panel, no manpower is involved. As a matter of fact, the machine is equipped to perform completely automatically. But every mechanical device needs some supervision. And to assure the man's staying on the job, the unit is fixed so that a button must be punched at cer-



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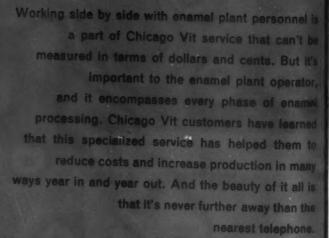


bath-tube









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architectural



igns



Staging platform. Tank manually placed is grabbed by elevator and magnetic chuck which is in place.



2 Lifting, elevator drops clear and pneumatic cylinder powered loader moves tank in arc to open station.



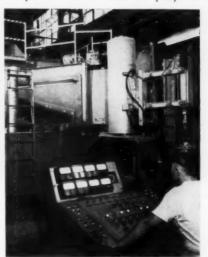
Be-energized chuck releases tank. Loader returns to position as man places another tank on platform.



Unloading, duplicate loading arm with magnetic chuck swings down to blasted tank and magnet clamps on.



5 Lifting the tank from the station is then done. The operation is in the automatic sequence set-up.



Platform moves in as tank is upped to vertical position. Rubber tipped air cylinders kick tank free of arm.

THEY BLAST CONTINUED

of the accompanying drawing showing the layout of the machine. Within the machine are five abrasive wheels for interior cleaning and three for exterior cleaning of the water heater tanks.

After these blasting operations are completed, the shells move through the grit removal station which combines mechanical whirling and exhaust air to perform its purpose.

First the interior and exterior of these cylindrical shapes with the top head assembled are given a completely new clean surface, and secondly, the controlled process prepares an irregularly roughened surface to provide the necessary adherence or bond of the porcelain enamel to the steel, which makes up the famous Permaglas water heater.

After the interior and exterior surfaces of the shell have been prepared for glass coating, the unloading mechanism raises and positions the magnetic chuck a fraction of an inch above the shell as it rests in the machine cradle. As before, the chuck is energized, pulling the shell free of the cradle into its "V" face. The shell is thus lifted to a vertical position and, automatically, a table moved in to receive it.

Shell discharging operation

The chuck is then de-energized, and two small rubber tipped, air operated plungers kick the shell away from the chuck to prevent any sliding action that would mar the surface.

The table on which the cleaned shell is placed is fitted with a vertical holding jig, and this holds the shell in position as the table automatically raises to a 90 degree angle, placing the shell in a horizontal position.

From here, the shell rolls some 12 inches until stopped by lift arm units fixed onto a traveling chain conveyor. This transports the shell from the area and, still automatically, into the spray section of the plant for the glass application operations.

How efficient is the unit? Well, at A. O. Smith, the shells used range in size from 12" in diameter and 27" long to 20" diameter and 65" long with a maximum weight of some 180 pounds. Two hundred and twenty shells are cleaned per hour—about one every fifteen seconds, which makes it a good operation to compare, economy wise, with your own.

O. HOMMEL CAN HELP MAKE Your Cost Chart LOOK LIKE THIS...

COSTS

PROFIT

Acid-Resisting Frits
Flame-Resisting Frits
Tite-Wite
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American Vallendar Clays
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Wherever good porcelain enamel finishes are needed, Hommel engineered frits are recognized as a symbol of quality . . . and a better profit margin on your production.

Prepared according to most exacting specifications, production controlled by the Hommel Laboratories, they assure uniform results. Because they are made from the finest raw materials, they give you the properties you want in porcelain enamel . . . a finer finish and fewer rejects.



FINISH AND STEPHEN BLAKE PHOTOS

Major electric appliance goal set for 1957

plan sale of 11,350,000 appliances in new period. Builder fields to be hard hit by range promotion. Plumbers, teachers are target.

REPORT ON PROCEEDINGS by Dana Chase, . FINISH EDITOR AND PUBLISHER

W ITH surveys pointing to the purchase of 1.500,000 electric ranges, 1,100,000 food freezers and 8,750,000 other electric appliances during the next twelve months, three sections of the National Electrical Manufacturers Association Major Appliance Division began individual business sessions at the Homestead, Hot Springs, Va., May 11, to plan their promotional programs for 1957 to take advantage of the optimistic forecasts for continued good sales volume.' The sections meeting included The Electric Range and Electric Water Heater Sections and the Household Refrigerator Freezer Section.

Range promotions

Member companies in the Electric Range Section approved plans for continuing their activities in educational, architectural and builder fields. In the first two areas of interest, the Section will stress to architects and builders the growing trend toward the installation of electric ranges in new as well as in existing homes.

The 1957 program will emphasize the fact that many builders are using elec-

NEMA Electric Housewares Section meeting held at start of spring meet was attended by (left to right around the table) G. W. Orr, John Oster Mfg. Co.; J. D. Rumbough, The Silex Co.; H. S. Perkins, Landers, Frary & Clark; R. Z. Sorenson, Westinghouse Electric Corp.; D. F. McCann, Waring Products Corp.; Arnold Wolf, Hamilton Beach Div. of Scovill Mfg. Co.; Don Alfred (Section Chairman), Fielderest Mills, Inc.; Don Benson, NEMA staff; C. C. Mendler, Sunbeam Corp.; M. M. Masterpool, General Electric; H. G. Blakeslee, Cory Corp.; S. G. Fisher, Landers, Frary & Clark; and S. M. Ford, the Silex Co.

tric ranges as a "selling tool in thousands of new homes, giving customers, in many instances, a choice between free-standing and built-in units." Advertisements to both architects and builders will explain how well electric ranges complement the kitchen designs of today, whether they are planned for open living or as a gathering place for the family.

Home economics teachers and school management officials will continue to be made aware of the advantages of electric cooking through advertisements and literature tailored for their special needs. Both teachers and school management leaders will be offered demonstration recipe booklets and the Section's Electric Range Teaching Kit. In addition, school management officials will be offered a revised edition of a





Subcommittee luncheon (top—left to right) W. E. Sayler, Kelvinator; R. M. Beatty, Westinghouse; H. H. Watson, General Electric, J. Rushton, Frigidaire. (Bottom) K. F. Rushton, Frigidaire, NEMA Director J. F. Miller, Walter Eichelberger, Philco; and J. R. Poteat of General Electric.

NEMA MEET CONTINUED

booklet, entitled Planning The Modern Home Economics Department.

Range manufacturers also approved continued cooperation with the Edison Electric Institute in coordinating special tie-in campaigns designed to promote nation-wide acceptance of the concept of using more electrical equipment for a better and more convenient way of modern living.

Plumber is key

The Electric Water Heater Section approved continuation of its campaign directed to plumbers as a means of urging them to merchandise as well as to install and repair electric water heaters.



Built-in Appliances get a working over as R. T. Hulett, General Electric, makes a point at technical panel discussion during meet of Major appliance division. Others are Will Kline, Jr., Westinghouse; John C. Martin, Frigidaire, and H. W. Schulze, Philco.



Extemporaneous chatter with E. J. McFadden, General Electric, W. R. Arbucker, Westinghouse, and J. L. Andrews of Hotpoint in one of the many "corridor conventions".

Water heater manufacturers are also directing attention to the rural market and have produced a sound slide film as well as a series of new booklets (distributed through both utility companies and REA cooperatives) to point out the importance of heating water electrically for use in rural homes.

Campaign to schools

Members of the Household Refrigerator and Freezer Section will continue their campaign to provide information on their products to home economics teachers and school management officials.

A Freezer Teaching Kit is being offered to all home economics teachers. At the same time the Section will cooperate with the home service directors of eighty utility companies in conducting a survey to determine the extent to which kits, now in the field, are being used

School management leaders will be reached through their specialized magazines and efforts will be concentrated on informing them of the need for providing students with instruction on the use and care of food freezers.

Producers cite optimism

Meetings of the Major Appliance Sections were conducted in an atmosphere of confidence. Among facts and figures cited to show an encouraging future were these: increase in the FHA Title I loan limit from \$2,500 to \$3,500, and rapidly expanding wiring installation and household equipment financing plans being made available by power



Major Appliance Chairman R. I. Sargent talks over the mar-Walter G. Barlow, Opinion Research Corp., just prior to address to the general membership at the Homestead meet.



A good cigar, and a good argument, are enjoyable moments for Frigidaire's C. J. Prashaw and J. J. Anderson of Westinghouse. Anderson was also in evidence on the golf course photos show.



Looking forward at the market and the cameraman during the NEMA sessions are W. M. Timmerman, General Electric; D. S. Sharp and D. C. Rainey of Tappan, W. L. Jeffrey of Kelvinator.



Wives were well in evidence at the meet. Here are Mr. and Mrs. Dave Rainey of Tappan Range and chairman of Electric Range Section and Mr. and Mrs. Don Sharp of Tappan.

suppliers and lending institutions.

J. Don Mason, chairman of the Dishwasher Activities Committee of the Household Sink Units Section of NEMA and advertising manager of the Hobart Manufacturing Company, reported that the dishwasher industry is looking forward to 1956 as the greatest promotional year in its history.

More than 50 cities are planning automatic electric dishwasher promotional campaigns during the coming months, and indications are that additional communities will launch similar programs later, Mason reported.

Mason termed the reactions to the initial promotional effort to 50 cities "an excellent indication of widespread acceptance among power suppliers, electrical leagues distributors, dealers and

the press of the Section's program to help expand the market for automatic electric dishwashers by creating every increasing consumer and trade interest in the appliance.

"The 37.5% increase in electric automatic dishwasher sales in 1955 over 1954 is just the beginning. We are on our way to bigger volume in the years ahead."

Houseware sales increase

Sales of electrical housewares during the first three months of this year were 10% higher than in the last quarter of 1955, and there are no indications of a slow-down in the immediate future, according to views expressed by representatives of the Electric Housewares Section. The industry rolled up an impressive sales volume of one billion dollars last year. This figure, said Michael M. Masterpool, chairman of the Section's Sales Promotion Committee, "serves as a reminder to distributors, dealers, power suppliers, electrical leagues and all other sales allies in the electrical industry that housewares is big business now and will continue to remain so." M. Masterpool is manager, advertising and publicity, Portable Appliance Department, General Electric Co.

He also pointed out that the industry's ability in the past to carry out an intensive consumer educational program has been one of the prime factors in obtaining greater distributor and dealer awareness of the sales potential of electric housewares.



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BROWN RANGES, CIRCULATORS, WATER HEATERS

Enterprise

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MOFFATS LIMITED WESTON . ONTARIO . CANADA



WIEW "No Fog" oven door window

a valuable sales tool for leading range manufacturers engineered to the product for years of carefree use

These well known names and trademarks represent some of the leading manufacturers of gas and electric ranges who are incorporating the steel incased, double pane PERMA-VIEW window in their ranges as a feature with the selling power to move new ranges.

Fifty-one leading manufacturers are now using PERMA-VIEW, the window that is mechanically sealed to prevent vapor infiltration and fogging.

The PERMA-VIEW window is pre-engineered, and comes to you ready for immediate installation in your range. "Out of our carton into your door". Let our specialized production lines serve as a part of your sub-assembly facilities. Phone or write us for complete details on the ease and economy of adding this sales feature to your new ranges.

110

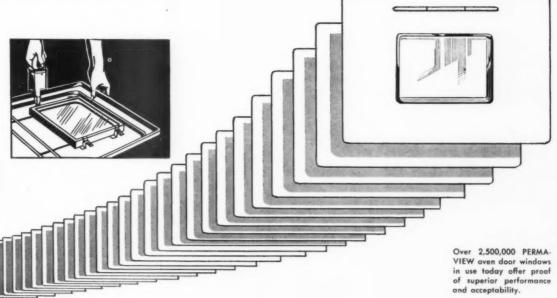
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officers elected **GAMA** division

The thirteen divisions of GAMA at the re-The new cent meeting elected officers for the period, taking office in October. officers and their divisions include:

Cecil M. Dunn, president of Magic Chef, Inc., St. Louis; vice chairman — John P. Wright, president of the Florence Stove Co., Chicago; executive committee member — Wendell C. executive committee member — Wendell C. Davis, president of Cribben & Sexton Co., Domestic Gas Range Division: chairman-

Gas Wall & Floor Furnace Division: chairman - Harley Weatherley of Chattanooga Royal Co., Chattanooga, Tenn.; vice chairman—Lyman Mac Harg, general manager of Williams Furnace Co., Buena Park, Calif.; Pasadena, Calif executive committee member-Paul Hammon of Holly Manufacturing Co., Pasadena, Calif

man — Robert I. Warneke of Roberts Gordon Appliance Corp., Buffalo; vice chairman — H. P. Mueller Jr., of Mueller Climatrol Div., Worthington Corp., Milwaukee; executive H. P. Mueller Jr., of Mueller Climatrol Div., Worthington Corp., Milwaukee; executive committee member—E. P. Hayes, vice president of C. A. Olsen Manufacturing Co., Elyria, Division: Conversion Burner

Valve Division: chairman — Norman f W. J. Schoenberger Co., Cleveland, Ohio; vice chairman - Howard Goss of Har-

Industry competition keynote of GAMA's 21st annual meet

intensive study on competition, review of industry objectives Julius Klein elected president. Greenbrier meeting brings forth

by Dana Chase

elected president of GAMA to take office

FINISH EDITOR AND PUBLISHER

nual Meeting of the Gas Appliance The Greenbrier, White Sulphur Manufacturers Assn., held April 19, 20 Springs, was the scene of the 21st Anand 21. The meeting opened with the tor Harold Massey told the group. An excellent program was arranged by a largest advance registration in the history of GAMA, Assn. Managing Direc-Hayes, The C. A. Olsen Mfg. Co.; and E. J. McFadden, Combustion Engineer-

Jr., president of the Rockwell Manu-Other officers elected to take office and director of Rheem Manufacturing in October, succeeding W. F. Rockwell, simultaneously were: First vice president - Clifford V. Coons, vice president Co., New York; Second vice presidentfacturing Co., Pittsburgh.

E. A. Norman, Jr., president of the Norman Products Co., Columbus, O., and Treasurer - Stanley H. Hobson, president of the Geo. D. Roper Corp., Rock-



President-Elect Julius Klein

mittee member — Fred Schmidt, secretary & treasurer of The Roberts Brass Manufacturing per-Wyman Co., Chicago, III.; executive com-Mitchell, Indiana.

Corporation, Bay City, Mich.; executive committee member - F. H. Martin, vice presi-Majestic Company, Inc., Huntington, Ind.; vice chairman — William Hebert of Calcinator dent of Martin Stamping & Stove Company, Gas Incinerator Division: chairman — Don Winegardner, assistant sales manager of The Huntsville, Ala.

Schick of Minneapolis-Honeywell Regu-Company, Minneapolis; vice chairman— E. B. Maire, vice president of Penn Controls, trols Co., Greensburg, Pa.; F. G. McCloskey of Crise Controls Division of Acro Manufac-Automatic Controls Division: chairman Inc., Goshen, Ind.; executive committee mem-Frank Post of Robertshaw-Fulton Con-Fitan Valve and Manufacturing Co., Cleveland. turing Co., Columbus, Ohio; D. J.

Gas Unit Heater & Duct Furnace Division: airman — T. D. Bromley, vice president,

mittee member — Frank Kern Jr., preside of Maxitrol Co., Detroit, Mich.

Gus Clothes Dryer Division: chairman

GAMA marketing and statistics director Ed Martin had some interesting and heartening statistics to report of the

The report quotes a Long Island dis-

ing. Inc. The ladies entertainment com-

ing range in new home cours, many sections of the country,

consisting of Karl W. Schick, Hayes, The C. A. Olsen Mfg. Co.; and E. J. McFadden, Combustion Engineermittee was headed by Mrs. W. F. Rocking, Inc. The ladies entertainment comwell. Jr., wife of the GAMA retiring committe

ford. Ill.

excellent program was

Some of the high spots were golf tourna-There was ample allowance in the ments for both ladies and men, the Presthree-day program for social events. ident's dinner on Friday night followed by a variety show, etc. president.

Heavy meet schedule

It soon became apparent, however, at The Greenbrier for social purposes With the wide diversification of products represented among association members, it is easily evident why group or division meetings are more effective for the discussion of individual products and their that the Gas Appliance men were not only. A full complement of down-toearth business sessions by the individual components. Following is a listing of Wall and Floor Furnace, Conversion Burner, Valve, Incinerator, Automatic Controls. Unit Heater and Duct Furnace, Appliance Regulator; Clothes Drv. the GAMA divisions: Domestic Range, er, Boiler, Water Heater, Vent and Flue divisions was programmed. Pipe, and Furnace Divisions.

New officers elected

Julius Klein, president of Caloric Appliance Corporation, Philadelphia, was

toward the finished home, with all appliances included in the purchase price tributor as saying, "The trend is all (and 20 years to pay). Why, 98 per cent of all my builder business today calls for built-in ranges. Last year my figure was 70 per cent." (See complete survey on built-in appliances by Margaret Stedman in the February, 1956, issue of The report quotes a Long Island dis many sections of the country.

A Texas distributor is reported to have predicted that within five vears built-in gas ranges will represent 50 per cent of total sales. He based this on the The phrase, "I don't like the kitchen!" increase noted in the past two years. has, according to the GAMA survey. launched a major switch in house-building technique. The survey on which the report was based was conducted with new home builders and appliance dis-

Electrical competition

Although practically all segments of the gas appliance industry have been in by J. T. (Ted) Wolfe, Baltimore Gas & Electric Co., Baltimore, Md., whose topic position to report excellent sales and production figures, the key note of the Assn. meeting was a strong presentation was "Electrical Competition," Wolfe pulled out all the stops in his presenta-

to Page 64 1

COONS, NORMAN, HOBSON NAMED TO POSTS



Second vice president-elect E. A. Norman, Jr. First vice president-elect Clifford Coons



Stanley Hobson

first quarter developments by the in-GAMA marketing and statistics direction for Martin had some interesting heartening statistics to report of dustries his association serves.

equipment were at a higher level than quarter unit shipments of domestic gas In the aggregate, Martin reported, sales of residential gas appliances and the '55 first quarter. Combining first ranges, automatic water heaters, furnaces, boilers and conversion burners, floor furnaces, vented recessed wall heaters, direct heating equipment and incinerators, total over-all shipments were about 2% up over 1955 totals. Shipments of gas fired water furnaces particular significance, Martin points out, is that both these types of gas fired central heating equipment established and boilers were respectively, 11.0% and 37.9% ahead of the '55 period. Of all-time sales peaks last year. Gas conversion burner shipments were 21.6% over 1955 volumes. Automatic gas fired water heater shipments also established its sales peak last year. At the end of the first quarter, they were 6% ahead of the like '55 period.

direct heating equipment showed a marked increase, 11.8%, over the first quarter of 1955. Shipments of floor First quarter shipments of gas fired heaters were below like 1955 period. urnaces and vented recessed wall

for domestic gas ranges, shipments of Gas fired incinerator shipments continued strong through the first quarter exceeding last year by about 24%. As free-standing models ran 6.5% behind the '55 first quarter volumes. However, Martin pointed out, adding shipments of "built ins" the volumes would com-Gas clothes dryers are continuing to improve their sales position, Martin said, as reported earlier. Figures were not available however. In the non-residential appliance and equiment field, shipments of gas fired unit heaters performed at a rate of about 25% greater than 1955. Shipments of gas hotel, restaurant, and commercial cooking equipment are also functioning about last year's volumes pare favorably to 1955. Martin concluded.

of Maxitted Co., Detroit, Mich.

Ges Clothes Dyver Division chairman—
Franklin T. Grimes of Whirlpool-Seeger Corporation, St. Joseph, Mich.; vice chairman—
Leroy Klein of Caloric Appliance Corporation,

Divi

Phila., Pa.; executive committee member — Norman Millard of Crosley-Bendix Home Apkee; vice chairman - E. T. Selig, Jr., director of engineering of Burnham Corporation, Irvington, N. Y.: executive committee member—N. E. Westphal of Weil-McLain Company, diance Division of Avco Manufacturing Co., Gas Boiler Division: chairman - Frank J. Nunlist, vice president of Mueller Climatrol Corporation, Milwau-Division - Worthington Jincinnati, Ohio.

Gas Water Heater Division: chairman— Frank Osborne, vice president of Mission Ap-pliance Corp., Los Angeles; vice chairman— New Kensington, Pa.; executive committee member — Harry B. Carbon, president of Bas-tian Morley Co. Inc., LaPorte, Ind. David Cannon of Lawson Manufacturing Co., Michigan City, Ind.

pany, Dallas, Tex.; vice chairman—B. A. Johnson, vice president of Condensation Engineering Corporation, Chicago, III.; executive tive vice president of Van Packer Corpora-tion, Bettendorf, Ia. Gas Vent & Flue Pipe Group: chairman C. E. Blome, director, industry relation Metalbestos Division, William Wallace committee member - Packer

A. Jones of Century Engineering Corp., Cedar Rapids, Iowa; vice chairman—Keith Davis of Carrier Corporation, Syracuse, N. Y.; ex-ecutive committee member — Frank Meyer, Gas Furnace Division: chairman - Edwin president of Meyer Furnace Company, Peoria,



the chairman in charge of the match Golf, of course, prizes were a part of the annual spring get-to-gether. Here, gets ready to announce the winners for the spring, 1956, competition. For the winners, please turn the page.





GAMA banquet table scene. Left to right (top) are Jim Donnelly, incoming president Julius Klein, W. F. Rockwell, Frank Adams, Ted Wolfe, GAMA Legal Counsel Richards, and Ex-GAMA managing director, H. Leight Whitelaw. Bottom photo: Harold Massey, Jack Ray, George Hammon, Chet Stackpole, AGA managing director; Stanley Hobson, Lysle Harvey, Shep Cornell, and Tom Arden.

GAMA CONTINUED

tion of the facts concerning electrical industry competition by referring to the major appliances individually and describing the current competitive situation for each.

"Rough competition for cooking is breaking out all over the country," Wolfe said, with electric companies promoting a wide variety of electric ranges retailing under \$200 and with "standard wiring installation" for only \$19.50.

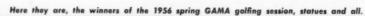
Surveys conducted in ten cities under AGA's demonstration city program reveal that one out of three present gas range users prefers an electric range for his next purchase, he asserted. "Why? Well, those surveyed say that the electric range, in their opinion, is cleaner, cooler, more modern and has more automatic features. Notwithstanding the opinions among gas range manufactur-



Above and Below; time out for cocktails during GAMA meeting.



to Page 75 →







Top quality control engineers guide this unmatched skill to obtain a product that meets rigid specifications-theirs and yours.

Add to this the service your Follansbee representative stands ready to give you and you'll realize why more and more manufacturers are turning to Follansbee for their cold rolled strip requirements.

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Cold Rolled Strip . Seamless Terne Roll Roofing . Polished Blue Sheets and Colls Sales Offices in Principal Cities



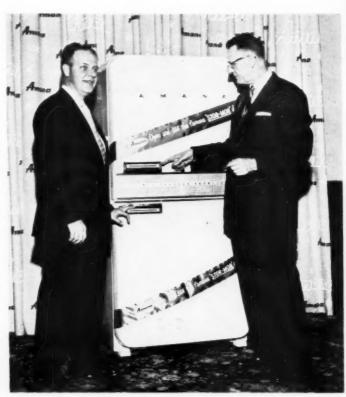


Kelvinator College of Cooking Knowledge — District managers of Kelvinator's Detroit zone receive cooking and appliance-use lesson from home economist Kay Riney in the Detroit Edison Co. kitchens.

finish...



Two-tone pistachio green is the color of the all-steel Golden Lewyt with gold wands and ivory attachments. A new feature is a built-in tool rack in back of the machine for cleaning attachments.



Amana logo drapes form a suitable backdrop for Amana's new freezer-plus-refrigerator. Admiring the new unit are J. A. Rishel, Jr., left, general sales mgr., and George C. Foerstner, exec. vice president.



Honorary recruiter is name bestowed upon Fred Maytag II by Des Moines area Navy recruiting station in recognition of the recruiting aid the Maytag-sponsored TV program, Navy Log, has become. Presenting a certificate is Lt. Cdr. R. L. Jones.



Made in Greece—this electric range was designed to fill the requirements of the average Greek family. The basic difference, as compared to European standards, is the extra large oven. It is manufactured by the Isola Co., near Athens.



finish JUNE . 1956

pon Des

re-

rec-

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tag-

ram, ome. icate ones.



A sign and a symbol — were incorporated in this porcelain enamel sign. Designed by Wilbur Henry Adams, in photo, for Lyons Transportation Co., Erie, Pa., background is red, letters, white and shadow line, black.



New Chambers distributor—is Hoffman Sales Div., Hoffman Electronics, Inc., Los Angeles. On hand for the signing of final papers are, seated, l. to r., J. E. Herbst and Frank Fern of Hoffman; standing, l. to r., Phil Segrais and Edmond Clark of Hoffman and James O'Garran of Chambers.

Carrier Winter Weathermaker—air-conditioner adapts to summertime cooling through the addition of a cooling coil "package" underneath hooked up to the air-cooled condensing unit outside. Dual weather control center regulates both heat and cooling.



A bang-up job — this Very pistol is constructed entirely of zinc die castings. Only the hardware is machined. The signal flare gun is manufactured by Grover Smith Mfg. Corp., San Gabriel, Cal.



New Cincinnati Flo-coater automatically paints fan parts, wheels, housings and assemblies at NuTone, Inc., Cincinnati, Ohio. Unit conserves paint formerly lost, boosts production speed.



Huge Cincinnati gasfired baking oven at NuTone, Inc., is roof-mounted, frees valuable plant floor space for assembly and other operations. Painted parts are automatically conveye through 15 minute baking cycle.

SAVES \$900 A WEEK

Finishing System at

NuTone

his automatic painting and baking system, designed by CINCINNATI for NuTone, Inc., world-famous manufacturer of door chimes, ventilating fans and kitchen hoods, has increased production, sharply slashed finishing costs and doubled capacity per square foot area.

The former method used by NuTone, to spray parts and assemblies for their products, consumed large quantities of paint. With the new CINCINNATI system, paint consumption is reduced to from 35 to 50% of what was formerly required.

Add to this a substantial increase in production, and you realize the unbelieveably higher efficiency NuTone has achieved, while saving more than \$900 per week!

Take a look at your finishing costs. Better yet, have a CINCINNATI Cleaning and Finishing engineer take a look at them. He'll give you a obligation analysis that can point to real savings for you. Write today!

OPERATION CYCLE 1. Loading

3.

4.

Flo-coating

Excess paint runoff

Baking

5. Touch-up
6. Unloading

Conveyor speed 10 ft. per minute Baking temperature 280°F.

CINCINNATI designs, manufacturers and installs complete cleaning, finishing and baking systems, custom-built for your requirements.

Cincinnati

THE CINCINNATI CLEANING AND FINISHING MACHINERY COMPA

2004 HAGEMAN STREET

SHARONVILLE, OHIO, U. S. A.

NEWS



Chicago Vits Burton Sweely died May 4th

Burton T. Sweely, vice president in charge of re-search for Chicago (III.) Vitreous Corp. until his re-tirement in May, 1951, died May 4. He was 69. With Chicago Vit since 1932, he was director of research and manager of frit production until April of 1944 when he was elected vice presidentresearch, a position he held until his retirement. An active member of the Enamel Division of the American Ceramic Society, Sweely through the years held a number of important posts with that organization. He was a member of the Founder's Group of the Institute of Ceramic Engineers, a member of Tau Beta Pi, the Masons, Sigma Alpha Epsilon Fraternity and honorary member of Keramos.

Servel's commercial division modernized

Production capacity has been increased 600 per cent in the commercial refrigeration division of Servel, Inc., Evansville, Ind., the result of a half million dollar modernization program just completed. The program was inaugurated to streamline the plant layout and eliminate production bottlenecks as well as unnecessary materials handling and laborspending methods. Adequate use of mechanized conveyor systems were a major part in creating the increased efficiency, company officials said. Machine operations are also rearranged for faster and easier processing of compressor parts. A number of precision machines have also been added. Vice president John R. Morrill, general manager of the division, made the announcement.

Vacuum cleaner sales reach all time high

Factory sales of standard size household vacuum cleaners hit an all-time high in March of 395,686 units, the Vacuum Cleaner Mfrs. Assn. has just announced. The new record beats by 22,432 the previous record set in December, 1947. The March record helped also in making the first quarter the greatest in the history of the industry with 984,275 cleaners sold.

Largest summer show in history set for Atlantic City exhibit of the National Housewares Mfrs. Association

With a total of 579 exhibits of housewares and appliances occupying all available exhibit area in the vast Atlantic City Auditorium, the 25th National Housewares Exhibit Summer Show will be the largest in history, NHMA secretary Dolph Zapfel has announced. Set for July 9-13, the exhibit is expected to play host to an estimated 10,000 buyers from through the country, Canada, and abroad. Exhibit hours will be 9 to 5 daily except for the last day when closing will be at 2 p.m. To aid the buyers for the fall to

Christmas consumer market, the institute is preparing a complete list of exhibitors and booth locations. This will be mailed to some 11.-000 buyers, merchandise managers, and top management personnel in June. Included with this will be advance registration material so that buyers will not need to wait in line to obtain their registration cards, etc. Highlight on the social side will be the Hotel Traymore NHMA Housewares Showparty, set for Tuesday, July 10. Cocktails, dinner, a floor show and dancing will make up the evening entertainment.



Maytag "Operation 72" sales blitz a whopping success reports Maytag sales manager

Headed by President Fred Maytag II, shown at front table, far right as the campaign got underway, the Maytag Co. "Operation 72" sales blitz was a whopping success. That was the report from Maytag General Sales Manager Claire Ely, who announced that sales of Maytag appliances to dealers across the nation substantially surpassed the number sold during the first "Operation 72" of a year ago. During the 72 hours that followed that 8 a.m. beginning, April 26, Maytag executives were at special phones in a control center, receiving calls from

across the nation, Hawaii. and Canada. On the other end of the multitudinous lines were Maytag regional sales manager, calling in dealers' orders of 10 or more units. Some dealers were rousted out of bed and given the full Maytag story, it was reported. Shown above as the program got underway are (1 to right) President Maytag, George M. Umbreit, executive vice president and treasurer, Roy A. Brady, marketing vice president, and Ely. Chart in background was used to show progress of the 21 branch and distributor organizations.

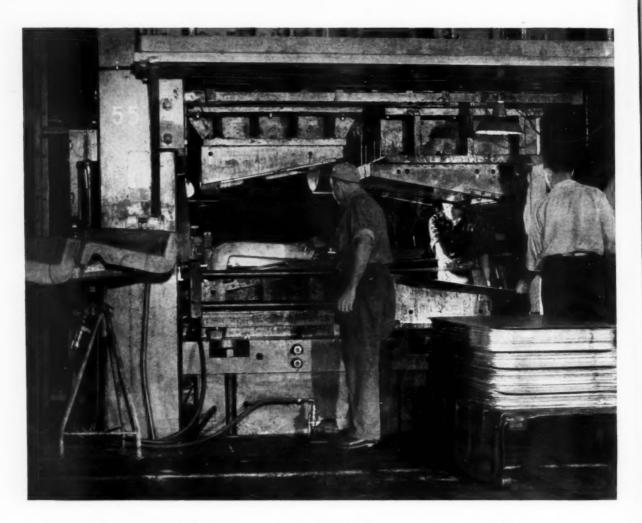


Tuttle's Amos Hackman Smacks "Hole in One"

"Slammin' Sammy Snead, move over." Tuttle Electric Products has a new competitor for the top post. And he's "Atomic Amos" Hackman, executive vice president for Tuttle, who singletoned in on the 220 yard sixth hole at Belmar Country Club, Kirkland, Ill. The spectacular exhibition was on April 26th with a finish staff representative on hand to witness the event.

Appliance sales up, gas needs soaring

Five busy years of appliance selling will give the natural gas industry more than \$900,000,000 a year added revenue by 1960, members of the annual convention of the Southern Gas Assn. were told at their April 25 meeting at Dallas. This objective was set by W. F. Rockwell, Jr., president of the Assn. "The needs," Rockwell asserted, "can be traced merely to the appliances sold in 1955 and the potential sales from 1956 to 1959. Gas ranges, while not reaching record levels, will sell in greater quantity than 1955," Rockwell said, "adding to that the said, "in the said, "in the said, "and the said, "and the said, "in the said, "and the said, "in the said, "in the said, "and the said, "in the said, "in the said," in the said, "in the said, "in the said, "in the said," in the said, "in the said, "in the said," in the said, "in the said, "in the said, "in the said," in the said, "in the said, "in the said, "in the said, "in the said," in the said, "in the said, "in the said, "in the said, "in the said," in the said, "in the said, "in the said, "in the said, "in the said," in the said, "in the said, "in the said, "in the said," in the said, "in the said, that the swift initial success of the built-in range, particularly in new homes, is indicative of "an ever-increasing consumer demand for this type of appliance.'



No wrinkles ... no checks ... no cracking

Yes, Youngstown Sheets and Strip have exactly the right combination of tensile strength, ductility and surface finish to form perfectly in your presses.

And just as important, they have the uniformity of quality that enables you to run even the most difficult part hour after hour without jam-ups and with a minimum of rejects.

The Youngstown District Sales Office near you is there to help you. Get in touch with us whenever we can be of service.



COLD ROLLED SHEETS AND STRIP

THE YOUNGSTOWN SHEET AND TUBE COMPANY Carbon, Alloy and Yoloy Steel

General Offices Youngstown, Ohio District Sales Offices in Principal Cities.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS

PMI names '55 safety award winning stampers

Nineteen companies in the metal stamping industry were honored recently by the Pressed Metal Institute for promotion and achievements in the field of safety and named winners of PMI's named winners of PMI's 1955 Safety award. Details on the award were given in the March issue of finish. Harold Daschner, PMI director, announced that the honored companies worked a total of 13,093,619 man hours with an accident frequency rate of only .45. Winners included Abalon Precision Products, Brooklyn, N.Y.; Admiral Tool & Mfg. Co., Chicago, Ill.; Cleary Shev-lin Mfg. Co., Van Dyke, Mich.; Ford Motor Co., Buffalo, N.Y., Stamping Plant; H.K. Metalcraft, New York City; Johnson Claffin Corp., Marlboro, Mass.; Kickhae-fer Mfg. Co., Chicago, Ill.; and S. & Z. Machine Tool & Die Co., Cleveland, O.

Santay Corp., Chicago, Ill.; Sheet Metal Specialty Div. of Follansbee Steel Corp., Follansbee, W.Va.; Suburban Metalcraft, Des Plaines, Ill.; Sylvania Electric Products, Wheeling, W. Va.; Telmore Engineering Co., Chicago, Ill.; Udall & Landon, New York City; Waterbury, Conn., Pressed Metal Co.; Wisconsin Tool & Die, Chicago, Ill.; and Wuest Brothers, Louisville,

William Rasch, first GAMA president, dies

William T. Rasch died April 18 at Fort Lauderdale, Fla. He was the first president of the Gas Appliance Manufacturers Assn. His death signalized the end of an era which produced many "firsts" in the gas industry, GAMA leaders asserted. As utilization engineer in charge of the Consolidated Gas Company Appliance Laboratory, which is often termed the forerunner of the American Gas Assn. Laboratory, he was a part in many early developments in the field. Rasch had been president of the American Gas Products Corp., a division of American Radiator and Standard Sanitary Corp., New York City, and in 1940 was named president of the Security Mfg. Co. at Kansas City. This company was later named Rasch Mfg. Co. and he served as its president until his recent retirement. Survivors include his widow and his son, Lee W. Rasch. manager of the central heating and air conditioning for Temco, Inc., of Nashville.

National Freight Claim Council to hear Bisbee

The general chairman of the National Safe Transit Committee, R. F. Bisbee, will be guest speaker at the meeting of the National Freight Claim Council of American Trucking Assn. at Cleveland, O., June 21. The meeting is being held in the Hotel Carter.

Carrier plans \$6M **West Coast facility**

A \$6 million dollar plant for production of air conditioning equipment, furnaces, and water heaters will begin this year, Lyle C. Harvey. senior vice president of Carrier Corp., has announced. With an area of in excess of half a million square feet the new manufacturing, engineering, and office facilities are on a 68-acre plot at Puente, Calif.. 18 miles east of Los Angeles. William J. Bailey, Carrier vice president and general manager of the divisions now located at Monrovia, Calif., will be in overall charge of the new plant, to be used by the Day & Night and Payne Divisions of the company.

to create "most modern and efficient operation"

An expansion program— at an estimated \$19,000,000 - for the Evansville, Ind., division of Whirlpool-Seeger, has been announced by J. W. Krueger, W-S vice president and general manager of the Evansville division. Included will be some 90,000 added square footage to the existing 962,000 sq. ft. Plant No. 2, some \$8,000,-000 for retooling of the '57 refrigerator and freezer lines;

construction, additional machinery and equipment and rearrangement of production facilities between plants one and two. Scheduled for occupancy Sept. 15, the new facilities will house a complete press shop as well as tool and die facilities. When completed the plant will fabricate and assemble refrigerators and freezers with plant one devoted exclusively to production of air conditioning units and components.

Oliver presents certification to SMU packaging Institute, and speaks before SW packaging group



Cooler sales on firmer

basis, says Mitchell G.M.

tioners in June and July will

be on a "firmer price basis

than any time in the past two

years," E. A. Tracey, general manager of Mitchell Mfg.

Co., Chicago, has predicted.

Tracey, recently returned

from a cross-country series

of sales meetings, based his

forecast on market trends

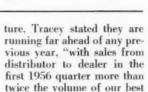
and the state of dealer and

distributor inventories. As

for his company's sales pic-

Sales of room air condi-

meeting of the Southwestern Division of the Society for Industrial Packaging and Materials Handling Engineers at which Oliver was guest speaker. Announced at the meeting was the appointment of Griffith, at right above receiving the certification from Oliver, as regional NST chairman for the Texas area.



Dealers like 90-day appliance warranty **NARDA** director says

previous year.'

"There is a tremendous dealer interest in the establishment of a 90-day warranty period for labor on major appliances, particularly washers, A. W. Bernsohn, managing director for the NARDA told the Appliance Parts Jobbers Assn. at a St. Louis meeting May 10. A majority are in favor of such a change, Bernsohn said, altho whether this is good for the self-servicing dealer and whether it might jeopardize the advantages he has over stores providing a minimum service to customers and operating on price alone, is a different matter. "It is because of this conflict," Bernsohn said, "that NARDA has not yet taken an official position on the subject.'

and \$11,000,000 for the new

according to leading makers of home laundry equipment... we have produced for them

A SUPERIOR ALKALI RESISTANT GROUND COAT!

Again "KNOW-HOW" proves its case!

You just can't beat the combination of scientific research and genuine practical experience . . . and that's exactly the combination which is producing superior Frits for Ing-Rich customers.

It should be of significant importance to you that our ceramic engineers have the rare advantage of daily contact with our large enameling plant where we both enamel our own products and do a very large job enameling business.

Ing-Rich ceramic engineers have the answer to your Frit problems because they have added practical "know how" to their scientific training.

INGRAM-RICHARDSON, INC.

OFFICES, LABORATORY AND PLANT FRANKFORT, INDIANA



Finish to feature the Mitchell story in July issue

A complete story of the Mitchell Manufacturing Co., Chicago, will be the highlight of the July issue of finish, the magazine of appliance and metal products manufacturing, the editors have announced. Mitchell Manufacturing Co. officials have been working in cooperation with a crew of finish editors to present a round-up report on each division of this national name in air conditioning. Starting off the report with an analysis by Mitchell Mfg. Co., President James Alsdorf will report on the role of the independent air conditioner manufacturer. The issue will reveal the thinking of the management men who head up each division of the company. Analysis of their room conditioner, with engineering details, will also be shown. The complete manufacturing operation from sheet metal, through fabrication finishing, subassembly, assembly, testing, and shipping will be told in pictures and editorial report. Capping off the report will be an engineering story on the new home air conditioning line which Mitchell has now put into full production. With the whole air condi-tioning industry taking a good strong look at the home conditioning market, the July issue of finish will provide a picture of one company's optimistic and aggressive planning in this field.

Gas furnaces show 26th consecutive month gain

March was the 26th consecutive month in which gas furnaces have shown an increase over the previous comparable period, E. R. Martin, GAMA director of marketing and statistics, has reported. Figures released by Martin show that the three month shipments of gas furnaces of the forced warm air and gravity types totaled 168,900, up 11 per cent from the 152,100 in the 1955 quarter. The March total of 60,400 was 12.5 per cent over the corresponding 1955 month.

PEOPLE AND EVENTS

Albert M. Gibson, 31-year old executive vice president of Gibson Refrigerator Co., Greenville, Mich., died May 2 following a heart attack at Rome, Italy where he had gone with his recent bride on a honeymoon. The Gibson Company was merged with Hupp Corp. of Cleveland in April and is now operating as a Hupp division.

Rowland H. Archer has been named superintendent of the Buick Motor Division's sheet metal stamping plant, Flint, Mich. Also announced was appointment of Marshall H. Boden, named manager of the Buick-Oldsmobile-Pontiac Assembly Plant of General Motors at Sunnyvale, Calif.

Named to the newly created position as associate research engineer for Maytag's research and development division is **Charles W. Burkland.** Research and development director V.P. **T. R. Smith** made the announcement.

Ethward C. Seabright has been named production manager, upped from director of quality control for the Electric Range Division of Philoo Corp., Mount Clemens, Mich., and placed in complete charge of all production operations in the plant.

Charles B. Huizenga has been named a vice president for Kawneer Co. Niles, Michigan.

Judson Large has been named vice president and secretary for McGraw Electric Co., Chicago, Ill. Other appointments announced were R. H. Gieseck, named treasurer; R. W. Martin, named controller; and E. C. Mason, named assistant secretary and assistant treasurer.

M. W. Rauen has been elected president for Lyf-Alum, Inc., Oconomowoe, Wis. He formerly was executive vice president for the enameled aluminum siding manufacturer.



Charles Streck has been named factory manager for Copeland Refrigeration Corp's., compressor manufacturing operations, at Sidney, O.

John Knox was named traffic manager for Westinghouse Electric Appliance Division, Mansfield, O., in a joint announcement by John W. Graig, Westinghouse vice president and general manager of the Appliance divisions and Kenneth L. Vore, general traffic manager for the company. Knox is currently chairman of the major appliance traffic committee of NEMA and has, for a number of years been an active member of AHLMA.

Kenneth E. Anderson has been named general plant manager for Norge operations at Muskegon and Muskegon Heights, Mich, it was announced by V. C. Rice, vice president—manufacturing and engineering, for the Norge Div. of Borg-Warner Corp. Chicago. Anderson replaces Charles W. Martin who resigned to become president of Ranney Refrigerator Co., Greenville Mich.

A. O. Willis has been named manager—manufacturing, for National-U.S. Radiator Corp., Johnstown, Penn.



G. T. Etheridge has been named assistant to B. A. Chapman, vice president and general manager of the Kelvinator Division of American Motors Corp. With Kelvinator since 1941 Etheridge was upped from western regional manager.

Named to vice president for research and development, a new post at Lockheed Aircraft Corp., Burbank, Calif., is Clarence L. Johnson. Named at the same time were John B. Wassall to director of engineering, and M. C. Hadden, to chief engineer.

A. A. Pleper has been named controller for Servel, Inc., Evansville, Ind.

Three additional directors have been named to the board of the Natl, Housewares Mfrs. Assn., reports Socretary Dolph Zapfol. G. C. Kubitz (see news of his advancement above) was named for a three year term; J. M. Bradford, general manager of the Corning (N.Y.) Glass works, two year term; and J. M. Jayne, executive vice president of the Plax-Tex Corp., Los Angeles, Calif., one year term. Officers of the Assn., relected at the same time the above were named are: C. M. Creery, Revere Copper and Brass, president; W. E. O'Brien,

Toastmaster Products Div. of McGraw Electric Co., vice president; and **C. O. Hamilton**, Hamilton Mfg. Corp., treasurer.



Bernard Clark has been promoted to Works Manager for Avco's Crosley-Bendix plant at Nashville, Tenn. Upped from factory superintendent, Clark will be under the direction of Ralph Lawrence, Crosley-Bendix Home appliance Division vice president.

G. C. Kubitz has been named vice president in charge of sales and Fred Terons, vice president in charge of production, for the Aluminum Goods (Mirroware) Mfg. Co. Manitowoc, Wisc. President W. F. Bugenhagen made the announcement.

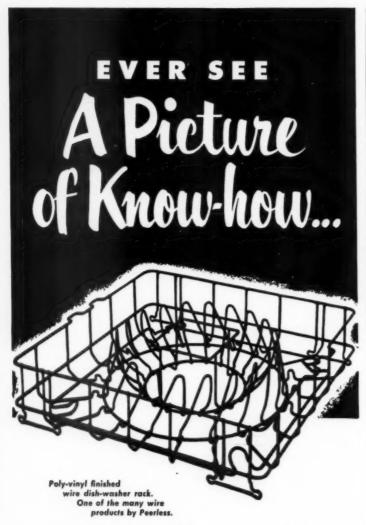
William A. Marshall has joined The Trane Co., LaCrosse, Wisc., as a development engineer in the company's product engineering dept.



Karl R. Van Tassel has been named to the new position of executive vice president for A. B. Dick Co., Chicago. A. B. Dick II, president, made the announcement. Van Tassel comes from General Electric Co., where his most recent position was general manager for the Knolls Atomic Power Laboratory. He was with G.E. for 31 years.

Elton W. Clark, former vice president of Allied Chemical & Die Corp. has been named to the board of International Metal Industries, Ltd., President and Board Chairman G. G. Gabrielson has announced.

Alien C. Menke has been elected to vice president—air conditioning and heating sales, for The Trane Co., La-Crosse, Wisc., and C. L. Ringquist has been named manager of the applications engineering department.



Illustrated above is one of the many reasons why PEER-LESS has long been known as one of the quality manufacturers of formed wire products. Intricate forming of low carbon steel, resistance welded at all points of contact, and quality finishing tells the story of craftsmanship. Here is a product of the highest calibre for appliances of quality.

Here, too, is the reason PEERLESS names among its customers many outstanding manufacturers of home appliances. If your requirements are for freezer baskets, refrigerator trays, dish washer racks or any of the hundreds of wire formed products, PEERLESS has the engineering, facilities and years of know-how to transfer your designs from drawing board to finished product . . . from zinc plate to organic and poly-vinyl finishes. And, PEERLESS can do it better, faster, at less cost. Send us your prints for quotations by return mail.



WIRE GOODS COMPANY, INC. 2702 FERRY STREET LAFAYETTE, INDIANA





One of the midwest's largest pumbing contractors and kitchen modernizers, the C. J. Erickson Plumbing Co. has been using Hudee Sink Frames for more than 9 years. In addition to the new retail showrooms pictured above the company maintains a large office, shop and warehouse.

Mr. Erickson says: "As our business has grown we have used more Hudee Sink Frames each year and are now using more than ever. You've got to have confidence in a company that's always first to introduce new ideas and improvements in a product."



the Standard of Quality

Hudee, the original clamp-down sink frame, offers many positive advantages. Not only are its basic quality manufacturing and installation features of the highest standards but, as Mr. Erickson says, Hudee always leads with engineering advancements. When you use Hudee you know you're using the finest.





National consumer and trade magazines tell the story of Hudee superiority

Architects, Builders, Installers, Plumbers and Homeowners everywhere agree—Hudee is the one sure way to achieve a permanent, waterlight, sanitary sink or lavatory installation.

WALTER

SELCK

Call the Hodes Distributor in your area or write-225 West Hubbard St. - Chicago 10, Illinois IN CANADA: Walter E Solds and Company, Ltd. - Tomoto

JUNE . 1956 finish

GAMA MEET CONTINUED

→ from Page 64

ers, this," said Wolfe, "is what they (the gas range users) say."

Competition's weapons

He also pointed to the weapons which the electric range producers are using to combat the principal advantages of the gas range — price and speed.

In referring to water heating, the Baltimore Gas & Electric representative said, "With respect to the water heating load, the gas industry, until very recently, has been enjoying a 'Roman Holiday'. The only real competition has been from summer-winter-hook-ups in oil furnaces, but now the electrical industry is invading this field.

Water heater situation

"Market surveys in ten demonstration cities surprisingly indicated that one out of five people interviewed prefers an electric water heater for his next purchase," Wolfe asserted. Reason for this preference, Wolfe pointed out, is more modern, safer, installation advantages in certain types of homes where no provision has been made for water heater installation.

Wolfe referred to the determination on the part of the electrical industry to lick the slow recovery problem in water heaters and problems relating to installation due to inadequate wiring.

Clothes dryer sales

In clothes drying, said Mr. Wolfe, electrical competition has led the way with more companies making them and with an earlier start. He cited 912,000 electric units for the past year as against 330,000 gas units. The possibility is that by 1960, Wolfe said, with dryer sales at the rate of \$1,500,000 a year, the ratio will be three to one in favor of the electric.

In considering refuse disposal, the chief competitor of the gas incinerator is the electric garbage disposer, plus the city trash collector and "smog." Here, said the speaker, "there is a real job of selling required to convince the housewife that she needs anything more than an electric garbage disposer which we must recognize as an extremely convenient gadget."

The refrigeration market

In referring to refrigeration, he pointed to the overwhelming competition of the electric refrigerator with only one manufacturer in the gas refrigeration field. He did say, however, that laboratory tests conducted "have convinced

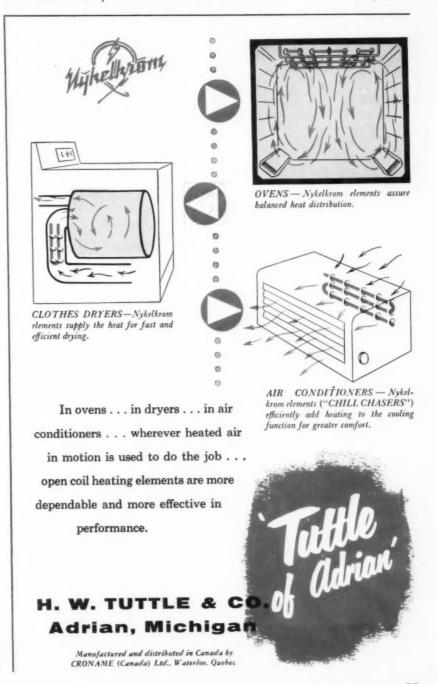
me that the new 1957 Servel refrigerator has met its competition on performance, bettered the competition on operating cost, greatly improved its service reliability. I think," he said, "the pendulum may well begin to swing back towards gas in the food preservation area."

What about space heating?

It might be considered that space heating would get little attention in the presentation of competition between the electric and gas industries. Not so, however. Mr. Wolfe spent more time on this one subject than on any of the other individual products discussed. We recommend the reading of the entire paper by anyone manufacturing space heaters. He referred to electric resistance heating as a "going business" with some 60 manufacturers engaged in the production of electric resistance heating devices. Considerations presented here were flexibility in control of temperatures, over-all cost of new home construction and space requirements.

The high cost of operation is likely to be the biggest current hold back.

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AIEE engineers meet to study appliance engineering developments

motor-driven appliances, silicone use, "planned obsolescence" are discussed at 7th Annual Appliance Technical Conference held at Milwaukee, May 14-15



Adequate servicing, "planned obsolescence," motors and products were in the spotlight at the 7th Annual Appliance Technical Conference at Milwaukee, May 14-15.

The two-day meeting, which included four separate sessions and a plant tour through the Hotpoint Milwaukee facilities, drew appliance engineers from across the nation. The conference, covered annually by finish, served its purpose well this year, as it has every year in the past, by providing appliance engineers the opportunity to discuss problems in their respective fields and to work with engineers from other companies in the interest of giving the public, and their own companies, the benefit of the latest and best technical information.

Conference sponsors

Sponsoring this year's conference were the following: American Institute of Appliance Manufacturers Committee on Domestic and Commercial Applications with H. F. Hoebel, American Gas & Electric Service Corp., New York City, as chairman; subcommittee on Domestic Appliances with B. F. Parr, Westinghouse Electric Corp., Mansfield, O., as chairman; and Milwaukee Section of AIEE with J. A. Deubel, Perfex Corp., Milwaukee, as chairman. General chairman of the Operating Committee for the meeting was W. R. Ibach, Wisconsin Electric Power Co.

Division chairmen

Chairmen for the four individual sessions were H. F. Hoebel, chairman, AIEE Committee on Domestic and Commercial Applications; B. F. Parr, chairman, AIEE Subcommittee on Domestic Appliances; G. E. Schall, Jr., Underwriter's Laboratories, Inc., New York City; Truman Cline, Newark Stove Co., Newark, Ohio.

Papers presented at meet

The first session included a keynote address by James H. Dunham, Wisconsin Electric Power Co., entitled "The

Appliance Business Uncontrolled", a paper, "Automatic Armature Testing", by D. C. Krammes, The Hoover Co., North Canton, O., and a paper, "Some Problems and Design Factors Concerning Noise in Motor-Driven Home Appliances", by E. R. Cunningham and G. L. Wolfert of General Electric Co., Fort Wayne, Ind. Wolfert delivered the paper.

The second session included the following papers: "Household Electric Dishwashers", by T. H. Swisher, Hotpoint Co., Chicago; "Fundamentals of A Combination Washer-Dryer" by J. G. Jacobsen, Westinghouse Electric Corp., Mansfield, O., and "Calculation of Refrigerator Cycling Performance with A Small Analog Computer," by R. V. Prucha, General Electric Co., Louisville, Kv.

The third session included a discussion on "Testing Motor-Driven Appliances for Safety", by R. M. Knourek, Underwriter's Laboratories, Chicago, and a panel discussion, "Test Procedures and Specifications for Motor-Driven Appliances", moderated by G. E. Schall, Jr. Members of the panel included Mr. Knourek; W. A. Fuller, Whirlpool-Seeger Corp., St. Joseph, Mich.; D. J. Harbour, General Electric Co., DeKalb, Ill.; J. F. Dexter, Dow Corning Corp., Midland, Mich.; and E. O. Morton, Westinghouse Electric Corp., Mansfield, O. The concluding paper at Session No. 3 was "Electric Motor-Driven Dryer Timers", by Dan Stolle, International Register Co., Chicago.

Discuss new electronic unit

The fourth and final session included papers on "Appearance Design Trends in Appliances", by Brooks Stevens, Brooks Stevens Associates, Milwaukee; "Improving Appliances with Silicones", by J. F. Dexter, Dow Corning, Midland, Mich.; "Applications of Solenoids to Appliances", by I. Gebel, Soreng Division of Controls Corp., Schiller Park, Ill.; and "Electronic Surface Unit Control", by C. J. Holtkamp, Westinghouse Electric Corp., Mansfield, O.

In presenting his sales viewpoint to the engineering group, J. H. Dunham, Wisconsin Electric Power Co., said, "I would like to add my voice to those of others in the electrical industry who have called attention through their studies, discussions and reports to the problems involved in adequate servicing of electrical appliances." (Wisconsin Electric Power Co. services operating parts during the first year on all approved electric ranges and water heaters in the Milwaukee metropolitan area. They also provide service on these units on a fee basis after the expiration of the one-year guarantee-as well as on practically all electric housewares.)

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Successes and failures

As a prelude to his discussion, Dunham said, "We (manufacturers, distributors, dealers and utilities) have done a pretty good job of educating the public-our customers-that our electrical appliances are desirable to have in their homes and, in many cases, that they are indispensable to modern living . . . We have, however, fallen down in the matter of rendering maintenance service in a manner that would be entirely satisfactory to our mutual customer . . . Mr. Dunham then covered the importance of standardization, training of service men and adequate consumer instruction.

The hot water problem

In his report on dishwashers, Swisher of Hotpoint told of how an effective way of adding wetting agent to the last rinse in a dishwasher can be accomplished by a solenoid operating injection mechanism. "Sterilized" dishes are free of any living pathogenic bacteria, Swisher said. "Sanitizing" includes proper cleaning, (hot water, good detergent and agitation), use of a wetting agent and drying with "clean" heat as opposed to a towel. "The ideal water for dishwashing is at a temperature range of from 140° F to 160° F", Swisher said, "and 180° water is too hot for early removal of dishes". Swisher spoke

on the current research being carried on to study the resistance of handles to detergents. "Hot water", he said, "is worse than detergents".

Analysing the washer-dryer, Jacobsen of Westinghouse reported that the combination washer-dryer has three definite advantages to the user: (1) no necessity to return to the location between operations, (2) less space required for equipment, (3) lower total cost, the result of many basic elements being common to both washer and dryer and, therefore, not needed in duplicate.

Wednesday, Jacobsen stressed the simplicity and ease of the washer-dryer and pointed out the need for education of the homemaker to do her washing as the need arises, eliminating the "Monday Washday". He also pointed out the great importance of educating the user to prevent overloading the machine. In referring to operation speeds, he said that a low-speed spin sacrifices time but saves space and cost.

Industry growing up

Appliance engineering has grown beyond the "child stage", Fuller of Whirlpool-Seeger, told the group, outlining how the industry has grown from a 2½ billion dollar volume to an 8-9 billion dollar volume in the short space of ten years. In referring to engineering changes, Fuller pointed out the deluxe model car of today that has as many as sixteen small motors. Pointing out his own company's growth, Fuller reported that Whirlpool-Seeger now had ten times as many engineers as six years ago that work on appliances.

Fuller decried the "iron curtain" which, in too many instances, hangs between the distributive service organization and the appliance engineer, pointing out the many possibilities for achievements that would result from closer coordination between the two.

The rapid growth of the appliance industry has made it extremely hard to keep up with required standards and approval testing, Westinghouse's Morton, stated. He pointed to the pressure on technical investigations and test procedures, resulting from the high production and the highly competitive market. The 180°F washing testing on automatic washers was too high a temperature to be practical, he said.

The use of silicones

Silicones were given full broadcast by Dexter of Dow Corning in his report to the group. "A unique combination of properties has made silicones useful to the appliance designer for a variety of applications", Dexter said. He pointed out the more commonly known uses in a wide variety of physical forms including lubricants that resist oxidation at temperatures from 100°-500°F; silicones rubbers for sealing, caulking electrical insulation, etc.; resins for

sealing, insulating and protective coatings; fluids with flat viscosity temperature slopes for heat transfer; molding compounds for fabricating terminal boards, coil forms and mechanical parts.

Dexter discussed the silicone-glass laminate for electrical terminal boards, spacers, washers and structural parts; the resinous foams which may be expanded in place for thermal insulation and for high temperature "sandwich" structures, and the wide variety of uses growing constantly out of the silicone field.

New electronic surface unit

Holtkamp of Westinghouse told of the electronic surface unit that has been developed to use the proportioning control principle and apply it to food cookery. "This control", Holtkamp said, "was made possible through the use of a variable duty cycle that is proportional to the relay coil current. The control is compact and features a single tube, printed circuit and push-in connectors."

Solenoid use in appliances

Gebel of Soreng Division of Controls Corp. in his paper on solenoids, pointed out the common uses for solenoids in appliances and the need for care in engineering the solenoid into the units. Pointing out the success achieved by appliance manufacturers in using solenoids for operation of valves, clutches, brakes, pumps, etc., Gebel stressed the need for careful engineering in mounting the units. Don't use the "hot spot" in your appliance to mount the solenoid, Gebel pointed out. "Locating the solenoid where lint and dust will not collect on the contacts is insurance for better performance of the appliance manufacturer's product and resulting customer satisfaction.'

Planned obsolescence

One of the papers featured in the closing session of the Appliance Technical Conference was on the subject of "planned obsolescence" in the home appliance and was presented by Brooks Stevens. The presentation was accompanied by a number of interesting color illustrations. Reproduced on the screen for benefit of design engineers were "The Gaylord", luxury car, refrigerator with transparent corner section, up-to-the-minute washer-dryer pairs, designs for food mixers and toasters for the future and other interesting suggestions from the standpoint of aesthetic design.

Speaking of practical product design, Stevens pointed out that, "When the washing machine was first streamlined, sales went up, and the cash register rang constructively. I decided at that point that an individual crusade for purism of art in the industrial product would be a thankless one as compared to the joyful ring of the cash register for my client.

"... As the industrial designer, the manufacturer and the engineer got to know one another, a definite dignifying of the styling approach to appliance design became apparent", Stevens pointed out. "We were on the brink of new materials, new tooling approaches and new horizons of sales volume that would provide dollars for experiment, exploitation and better products for the woman's world."

"Planned obsolescence"

"'Planned obsolescence may sound like a charlatan's stratagem", Stevens said, "to dupe the consumer into the purchase of a new motor car at the 15,000 mile point, or a new refrigerator, when the former one would last for ten years but actually we remember that this is a free country, and the consumer can buy on the easiest of terms the newest product that gives him pleasure. The annual model of the automobile with a new set of dentures or a new tail fin becomes the ego-satisfying badge of achievement to the Joneses in their community - and who doesn't want to keep up with the Joneses?"

"Is it right to sell new appliances to receptive consumers on the basis of color and trim alone?" If this subtle aesthetic adjunct to a good functional design pleases the missus, I say an emphatic 'yes'", Stevens vowed.

The resulting good

"The life blood of the traded-in automobile, refrigerator or TV passes on to the good American consumer in a lesser income bracket, who could otherwise not afford this luxury at its original retail price", Stevens said. "Thus, 'planned obsolescence' in the home appliance plays its necessary part in the productive healthy economy of this democracy and employment remains at an all-time high.

"With an eye to the future — and a wary one — we will be forced to call upon the ingenuity of the engineer and the industrial designer to prepetuate product design and styling and 'planned obsolescence' in the forthcoming "builtin' world. The ranch-type home", Stevens said, "the utility room, the kitchen of tomorrow, the built-in washer-dryer, the wall-hanging refrigerator and the centrally located cooking center appear at first to be ultimates in modern living.

In 1902 — the ultimate

"However, in 1902 Ransom E. Olds, designer and builder of the fabulous Oldsmobile car, formed a new company and produced the Reo car, his initials making up the name. He announced it to the American public and to the world as the greatest accomplishment in automotive engineering and design that could ever be attained. He called it 'My Farewell Car'."

Ít was.



Supplies and Equipment

F-10. The elcometer

An instrument for measuring the iron content in a stainless steel weld is now available. The elcometer is a pocket-size instrument, and



its operation is based on the principle that the increase of magnetic flux intensity between two soft iron test probes of a U-shaped magnetic circuit reduces the forces on a spring-loaded magnetic needle in a parallel magnetic branch. The tension of the spring can be adjusted so that the needle gives a scale reading corresponding to the ferrite content of a standard reference sample. In this way, using a set of standard reference samples for materials of different thickness, the ferrite content of production welds can be checked.

F-11. Divided infinite control



Divided infinite control that provides an unlimited number of heat settings (infinite control), plus five easily-dialed reference points, providing infinite control for both the

inner coil and the entire element. It permits manufacturers to equip ranges with any number double-coil elements, because it allows large or small utensils to be used as required on every burner and eliminates having to use small pans over large elements and vice versa. The dial operates clockwise for total element use and counter-clockwise for the inner element. The switch mechanism is encased in heat-resisting bakelite and is built to withstand 1,500 volts A.C. be-

More Information

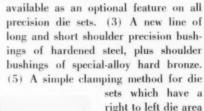
For more information on new supplies, equipment and literature reviewed here, write to us on your company stationery.

tween line terminals and between all terminals and cover plate in either "on" or "off" positions, as well as between line and load terminals in "off" position.

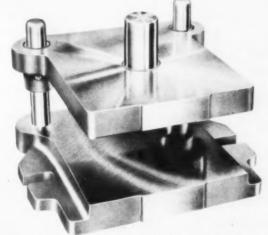
F-12. Die sets and diemakers' supplies

A complete line of die sets been introduced. The die sets offer 8 advantages: (1) Precision lapped chromeplated guide posts are standard equip-

and diemakers' supplies has ment. (2) Demountable bushings are



sets which have a right to left die area dimension of 20" or more. (6) Removal of punch holder during die making, die setting and regrinding has been made easier by making one guide post 1/2" longer. (7) The die sets meet all ASA standards. (8) All four horizontal surfaces are ground to a high finish to attain accuracy in positioning the die sets.



F-13. Synchronous motor with lube-less bearings

A synchronous motor with bearings that require no lubrication has been introduced. Since no lubricant is present, this design eliminates the formation of gummy residues primary cause of failure in motors required to operate in the presence of heat. The motor is specifically designed for use in gas and electric range, washer and dryer timers and for incorporation in any original equipment where heat poses a problem.

Rounded ends of the rotor shaft ride in cup-shaped bearings, with a specially designed spider spring mount taking up end play on pivots.

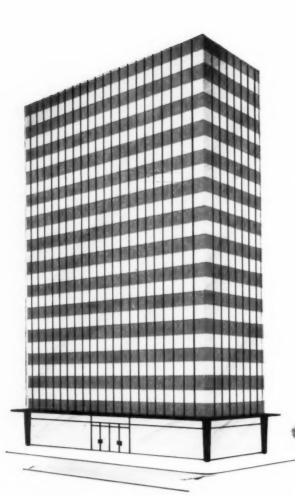
F-14. Industrial floor covering

A new, 100% solids resin coating can be used as an industrial maintenance material. In addition to having fine adhesion to wood, metal and concrete, it is highly resistant to chemicals, thus making it suitable as a floor coating in plating plants.

The manufacturer reports that it will withstand extreme temperature rangesfrom 20° below zero to 212° F. In addition, the floor coating is skid-proof even when wet.



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610. Color movie tells how zinc controls corrosion

A new 16 mm. sound and color motion picture, "Zinc Controls Corrosion", has been announced. Available for showing before industrial, technical and educational groups, the film tells how zinc in its role of "protector" controls corrosion to lengthen life and to minimize maintenance and replacement costs.

611. Automatic plating machine

New describes a new automatic plating machine. This machine can be used for cadmium and zinc plating and copper-nickel-chrome plating. One operator can handle loading and unloading. The unit is equipped with a multipurpose carrier which can be used for double spline or single spline racks. The machine will handle 120 racks an hour and take a rack size up to 16 x 36 inches.

612. Economical paint stripper

New An economical paint stripper which can be diluted with water 300% or more and still retain sufficient potency to strip a wide range of finishes, has been announced. According to the manufacturer, it easily and quickly removes such finishes as Epoxies, baked enamels, etc.

613. Steel strapping catalog

New A 44 page steel strapping catalog containing ideas to help speed packaging, lower handling costs and achieve safe shipment has been published. The booklet contains more than 65 drawings and photographs showing steel strapping applications in use today. Five basic ways of using steel strapping are described and a description of steel strapping tools and equipment included.

614. Electrostatic spray painting brochure

New A new brochure on electrostatic spray painting has been released. In explaining the basic process, both the disk atomizer and bell-

shaped atomizer are illustrated in diagram form. Numerous production line examples show a variety of application in the finishing of industrial products. Triple head units, stationary disk and reciprocating atomizing disk units are pictured in on-the-line examples.

615. Catalog on switches

New
A 12 page catalog covering a line of appliance, aircraft, automotive, electronic, motor control and special application switches has been released. Included are illustrations, ratings, dimensions and all specifications. Described are toggle, slide, rotary, push, grounding and special lever action switches as well as outlets, caps and pilot lights.

616. Brass pressure die castings

New Design data outlining the most economical uses of brass pressure die castings as fabricated assembly parts is contained in a new 4-page folder. Advantages of pressure die castings over sand castings are discussed and compositions and properties of pressure die castings are given. The folder also describes briefly how brass pressure die castings are made.

617. Brochure on lab and production ovens

A color-illustrated brochure describing re-designed models of laboratory and production ovens is available. Covering four models of lab ovens and four models in the production oven series, the literature describes new engineering, construction and control features for their "V" series ovens. It includes information on oven types, applications, capacities, new controls and specifications for gas and electric fired ovens.

618. Internal grinding handbook

New The "ABC of Internal Grinding" is a 70 page handbook. It answers such questions as how to choose the right wheel for different jobs, how to correct common grinding faults and how to reduce grinding costs.

619. Manual on barrel finishing

A manual on barrel finishing tells how to tumble to get the best results and effect maximum production savings. Simple, basic techniques, developed around a series of 27 chemical compounds, used with or without fused aluminum-oxide chips and other media, are described. The book covers general procedures for metal parts, a new technique of barrel finishing of plastic products, and pictures and describes barrels in a range of sizes and necessary accessories. A layout for a tumbling department is included. Price is 50¢ per copy.

620. Impact booklet

New of the impact extrusion process are illustrated in a 32 page booklet. Examples and industrial and commercial applications of the impacts are depicted by photographs and engineered drawings. Applications include components for hydraulic and pneumatic equipment, electric motors, refrigerators, vacuum cleaners and other household appliances.

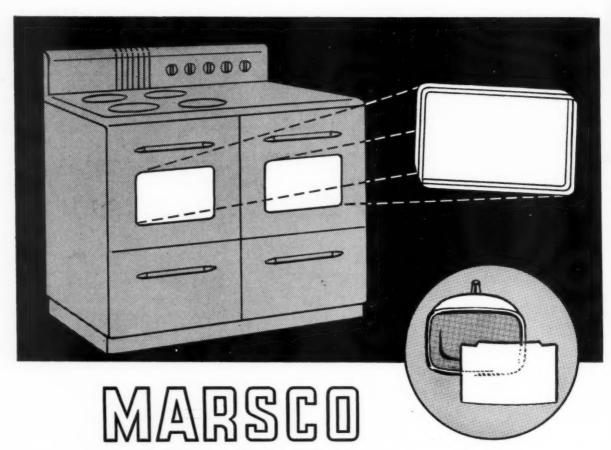
621. "Mounted Wheels"

Mew "Mounted Wheels" has been issued which contains information on maximum operating speeds for this abrasive product. The eight "maximum speed" tables contained in the booklet are designed to facilitate users' correct application. The booklet contains rules for safe and efficient operation and information on standard sizes of mounted wheels together with standard mandrel sizes applicable for each. There are three pages of silhouette drawings of the popular standard sizes of mounted wheels.

622. Wirebound box booklet

New An highly illustrated 8 page booklet, "Materials Handling, Stacking, Warehouse Applications of Wirebound Boxes and Crates", has been published. The brochure illustrates outdoor and indoor high-stacking of heavily-packed wirebound containers in minimum space, the speedy and easy handling of them by industrial trucks and the loading of cars and trucks. Pictures show application of containers to products at the end of production lines.

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Bent Glass



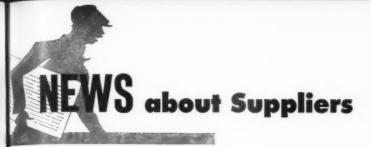
Convex Glass



Heat-treated Glass



MARSCO MFG. CO., 2909 S. HALSTED ST., CHICAGO 8, ILL.



HINDE & DAUCH NAMES ROBERTS SALES VICE PRES.

Paul H. Roberts has been appointed vice president in charge of sales of products made at Hinde & Dauch factories in Sandusky, Ohio, Detroit and a new plant now under construction at Eaton, Ohio.

HOMMEL APPOINTS SNYDER ASST. TO PRESIDENT

T. E. Snyder has been appointed assistant to the president of The O. Hommel Co., Pittsburgh, announced Ernest Hommel, president. Snyder will be in charge of advertising, sales promotion and public relations activities.

James W. Elliott has been appointed to the sales and service staff, Southeastern Div. He was formerly enamel plant foreman, Athens Stove Works, Athens, Tenn.



T. E. SNYDER



BERT COLE

ATLAS PLYWOOD ELECTS COLE SENIOR VICE PRES.

R. A. Muller, president, Atlas Plywood Corp., Boston, Mass., has announced the election of Bert Cole as senior vice president in charge of marketing, succeeding C. V. Molesworth, resigned. Cole was formerly vice president in charge of product sales.

PENNSALT ANNOUNCES MANAGERIAL APPOINTMENTS

Joseph J. Duffy, Jr. has been appointed manager of executive procurement and development of the Pennsylvania Salt Mfg. Co., Philadelphia. He was formerly manager of the metal processing chemicals dept. and is succeeded in that capacity by John M. Davidson.

John C. Lum has been named manager of new products, and Philip Rech has been appointed manager of Fosproducts.

HAYES IS M. H. RHODES SALES PROMOTION MGR.

Appointment of Chester B. Hayes as sales promotional manager of the M. H. Rhodes Co., Hartford, Conn., has been announced by Edward J. Doyle, vice president in charge of sales. Hayes was formerly associated with Gray Research, Hartford, Conn.

TUTTLE ELECTRIC, RENFREW TO EXCHANGE PATENTS

License agreement for exchange of patents has been reached between Tuttle Electric Products, Inc., Kirkland, Ill., and Renfrew Electric and Refrigerator Co., Ltd., Renfrew, Ontario, Canada, announced D. V. Tuttle, president of Tuttle Electric, and Renfrew President J. R. Longstaffe.

INTERCHEMICAL UPS BEBEE

Francis H. Bebee has been appointed manager of Interchemical Corp.'s newly created Commercial Development Dept.

ACME STEEL APPOINTS COFFMAN, DAVEY

Paul W. Coffman has been appointed superintendent of the Cold Mill Div., Acme Steel Co., Chicago, announced H. R. Sanow, general superintendent. John R. Davey was appointed manager of the metallurgical department.

UNION STEEL NAMES REED

According to W. C. Neumann, general sales manager, Wire Products Div., Union Steel Products Co., Albion, Mich., Lin Reed has been appointed manager of the research and development department.

HUIZENGA IS KAWNEER V P

Election of Charles B. Huizenga, assistant secretary, as vice president of Kawneer Co., Niles, Mich., has been announced by Lawrence J. Plymn, president.

CONNORS IS COWLES CHGO. REP.

Richard T. Connors has been appointed technical man for Cowles Chemical Co., Cleveland, in Chicago and nearby cities, announced Earl F. Clark, manager, metal cleaner department.





G. E. WEBER

R. T. CONNORS

WEBER, ANDREWS ELECTED FERRO VICE PRESIDENTS

The appointment of George E. Weber and Clifford Andrews as vice presidents and all officers re-elected has been announced by Robert A. Weaver, chairman of the board, Ferro Corp., Cleveland.

Weber will continue as treasurer. Andrews takes over the International Div. of Ferro as vice president - foreign operations.

HARRINGTON & KING NAMES SCARBROUGH SALES REP.

The Harrington & King Perforating Co., Inc., Chicago, has announced the appointment of Gene F. Scarbrough as representative in Georgia and Alabama.

ARMCO UPS TWO IN SALES

W. B. Quail, manager, Armco Steel Corp.'s sales division, announces that Willard Danner, former sales manager for the Chicago district, has been named manager of eastern sales. Sidney Yager, salesman in the Chicago area, succeeds Danner.

McLEESE IS VICE PRESIDENT OF METAL & THERMIT

H. D. McLeese has been elected a vice president of Metal & Thermit Corp.,
 H. E. Martin, president, announced.
 McLeese will continue as general sales manager.

NST ANNOUNCES 4 NEW MEMBERS

The following companies were recently certified under the National Safe Transit Committee: Kreonite, Inc., Wichita, Kan.; Diebold, Inc., Canton, Ohio; Westinghouse Electric Corp., Air Conditioning Div., Staunton, Va.; and Bay State Abrasive Products Co., Westboro, Mass.

Admiral

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Admiral Freezers save more natural flavor, color, freshness, nutrition!



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Constant research by Du Pont chemists has resulted in a finish that gives more rugged resistance to chipping, cracking, scratching and staining. Application costs are lower, too—without sacrifice of quality appearance and dependable performance.

DULUX keeps its flawless appearance after years of constant use in the home. Its easy cleanability, resistance to wear and long-lasting whiteness help build the continued customer satisfaction so vital to the success of any appliance line. No wonder so many of today's topflight appliance manufacturers use Du Pont DULUX Finishes.

E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington 98, Del.

CLAWSON NAMED "DISTINGUISHED ALUMNUS" BY OHIO STATE

The College of Engineering at Ohio State University has awarded the title of "Distinguished Alumnus" to Clinton Dudley Clawson, president of Ferro Corp., Cleveland.

The purpose of this award is to recognize distinguished achievements on the part of five alumni per year in the field of engineering.







T. W. WHIPPL

E. H. TITCHENER ANNOUNCES EXECUTIVE PROMOTIONS

E. H. Titchener & Co., Binghamton, N.Y., announced the following promotions: Russell F. Schreiber, former vice president, to executive vice president; T. W. Whipple, former sales manager, to vice president in charge of sales; and Edward T. Wayne, design engineer, to vice president and director of engineering.

NEW JERSEY ZINC BUYS AMERICAN CYANAMID PLANT

American Cyanamid Co. and The New Jersey Zinc Co. announce that an agreement of sale has been carried out with the turning over to the Zinc Co. of Cyanamid's Gloucester City, N.J., titanium dioxide pigments plant.

GRIP NUT MOVES CHGO. OFFICE

The Grip Nut Co. has moved its Chicago sales office to new quarters in the main plant at South Whitley, Ind.

NORTMANN-DUFFKE NOW McKEY PERFORATING CO.

The name of Nortmann-Duffke Co., Milwaukee, has been changed to McKey Perforating Co., Inc.

G.E. TO EXPAND SILICONE PRODUCTS DEPT. FACILITIES

The acquisition of more than 60 acres of land adjacent to the Silicone Products Dept. of General Electric Co. at Waterford, N. Y., has been announced by Dr. Charles E. Reed, general manager of the dept. The land was obtained

to provide room for an expansion of production, research and administration facilities.

ELGIN WATCH NAMES PRODUCT MGR. — ABRASIVES

Elgin National Watch Co., Elgin, Ill., has announced the appointment of Douglas Graham as product manager of the abrasives division.

PARTHUM IS HARNISCHFEGER AD & SALES PROMOTION MGR.

Harnischfeger Corp., Milwaukee, Wis., has announced the appointment of Charles F. Parthum as advertising and sales promotion manager.

ARMCO APPOINTS HALL

The appointment of W. Graham Hall as Los Angeles district sales manager for Armco Steel Corp., has been announced by W. B. Quail, general manager of sales.

DACEY NAMED BINKS REP.

James Dacey has been appointed sales representative for Binks Mfg. Co. in the Syracuse, N.Y., area.

3-MO. RESISTANCE WELDER SHIPMENTS UP 24%

Shipments during the first three months of 1956 were 24% over the same period of 1955, according to the Resistance Welder Manufacturers Association.

SWOFFORD IS CHAIRMAN OF MATERIALS HANDLING SHOW

W. Vernon Swofford, package engineer, Sefton Fiber Can Co., St. Louis, has been appointed general chairman of the 11th Annual Protective Packaging and Materials Handling Exposition, to be presented in St. Louis, October 22-25 by the Society of Industrial Packaging and Materials Handling Engineers.

TWO TO SELCK SALES STAFF

David J. Broderick, vice president, Walter E. Selck and Co., Chicago, has announced the appointment of Henry J. Schotters and Jack C. Hines to the sales staff.

SAUNDERS TO WOODEN BOX ASSN.

I. F. Saunders, Jr., has been appointed to the staff of the National Wooden Box Association, Washington, D.C., to serve as a promotional representative.

REYNOLDS BUYS CALIF. PLANT

Reynolds Metals Co. has purchased a building in Torrance, Calif., for the production of aluminum foil, announced J. Louis Reynolds, executive vice president.

RYERSON TO BUILD IND. PLANT

Joseph T. Ryerson & Son, Inc., Chicago, has announced the purchase of property in Indianapolis, Ind., as the site for a new steel service plant.

HUTT NAMED "FELLOW" OF CERAMIC SOCIETY

Glenn A. Hutt, vice president, Ferro Corp., Cleveland, was awarded the title of "Fellow of the Society" at the Annual meeting of the American Ceramic Society in New York City, April 22-26.

The award was given upon the recommendation of the fellows and the action of the board of trustees in recognition of productive scholarship in ceramic science and notable contribution to the ceramic arts and industry.



GLENN HUTT



W. K. METCALFE

J. O. ROSS APPOINTS SCHMIDT, METCALFE

J. O. Ross Engineering Corp., New York City, has announced the appointment of C. J. Schmidt, vice president of sales, to executive vice president, and W. K. Metcalfe, secretary, to director and vice president of sales.

YOUNGSTOWN SHEET NAMES BROADHURST, JONES

J. M. Tuthill, general manager of sales, The Youngstown Sheet and Tube Co., Youngstown, O., announces the appointments of R. P. Broadhurst as Chicago district sales manager and C. Hix Jones as Dallas district sales manager.

BROWN IS INTERCHEMICAL VP

Claud Brown, treasurer, has been elected a vice president of Interchemical Corp., New York City.

HARPER-WYMAN NAMES GOSS

Howard J. Goss has been named sales manager of Harper-Wyman Co., Chicago.

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Everyone's proud when they celebrate their 50th year business . . . and we're no exception . . but people like you made it possible. Working with us you have helped us design, engineer and produce stampings that have cut your and resulted in better products for American Industry. Sure, we have the know-how the best facilities but success comes only when customers are satisfied ...so, again, we're proud

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A Division of

than that, we're grateful to you

for making these 50 years

FOLLANSBEE STEEL CORPORATION

Follansbee, W. Va.

GAMA MEET CONTINUED

→ from Page 64

Not to allow his audience too much satisfaction in this connection, however, he stated, "The point which we keep emphasizing is that the public is demonstrating an amazing capacity to ignore cost in order to acquire what it thinks is the last word in comfort and convenience." He quoted an electrical construction magazine as predicting that by 1965 direct electric heating equipment business will exceed \$250,000,000 per year.

Now, the "heat pump"

Then comes the "heat pump"—still in its development stage. G.E. was quoted as claiming to have sold 3,500 in 1955, with expectations to sell 12,000 in 1956 and up to 30,000 by 1958. This development of the electric industry could be a definite threat to the gas industry in the fields of heating and air conditioning.

Before closing his remarks on the "black" side of the picture for GAMA members, Mr. Wolfe outlined the great difference in advertising and promotion expenditures between the two opposing industries . . . the balance being overwhelmingly in favor of electrical products.

The speaker closed these remarks with a question - "Should we get discouraged and say, 'Whats the use?' Emphatically, no. We will roll up our sleeves and get busier than we have ever been before. The vice president of a major electrical appliance company is supposed to have said to a group of visiting electric utility representatives, 'We're out to kill the gas business.' I say that, if the gas business ever dies, it would be a case, not of homicide but of suicide. It would be the most lingering and foolish kind of suicide from starvation, from cutting off the supply of brain power, muscle power, dollar power required to feed the bloodstream of a competitive industry."

A fight worth watching

Based on the acceptance of the candid remarks of the speaker just quoted and determination expressed by individual members of the gas appliance industry, it seems quite evident that the months to come may reveal to the interested observer a "battle royal" for the flood of business for home appliances and similar products which has been increasing steadily during recent years.

GAMA is scheduled to return again to The Greenbrier at White Sulphur Springs for its 1957 meeting.

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PREVENTS

RECORDER precision parts are being given the Macco Blucoat Rust Preventive treatment by one of the nation's leading elec-

GEARS, cut, ground and tempered, are treated with Blucoat to prevent rust during storage, shipping, and assembly.

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AUTO bodies of some of the world's largest body manufacturers are given the Blucoat treatment to prevent rust before painting.

5 Reasons for BLUCOAT'S NATIONAL ACCEPTANCE

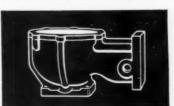
Macco Blucoat is the amazingly efficient rust preventive used by leading Macco Blucoat is the amazingly emcient rust preventive used by leading metal processors and fabricating manufacturers everywhere. Endorsed as metal processors and labricating manufacturers everywhere, Endorsed as the only practical method of preventing rust between production operations and assembly—and during transportation and storage.

- Water soluble economical, yet extremely efficient.
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- 3. Works equally well on steel, cast iron, forgings or die castings. 4. Leaves no oily film. Assures better adhesion. Collects less dust,
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For the prevention of rust, Blucoat positively has no equal. Whether for For the prevention of rust, Blucoat positively has no equal. Whether for the finest of automobile bodies or simply bale tie-wires, Blucoat's versatility makes it most indispensable for any processing plant.









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When you use VanSeal Frames on your built-in sinks and ranges, you can be sure of a frame that will fit perfectly! Installations can be made with confidence.

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Westinghouse packaging engineer is meet speaker

R. W. McCormick, packaging engineer for Westinghouse Electric Corp., Columbus, O., spoke on "Pre-shipment Testing—a New Quality Control Tool" at the May meeting of the American Society of Quality Control sectional meeting at Columbus, May 23. McCormick's company served as host to the meeting which represented local and area industries.

PEI profit conference is June 11 at Columbus

A seminar on profitable business practices will be conducted by the Architectural Division of the Porcelain Enamel Institute at Columbus, O., June 11-15. It is arranged particularly for management and fiscal officers of member companies. The profit conference was an outgrowth of the discussions during the February busi-ness meetings of the Architectural Division, Jim Vicary, president of Ervite Corp. and chairman of the division, announced. It will con-

sist of working sessions, lectures, presentation of ideas and discussion sessions . . all designed chiefly to study the latest in business practices and shop techniques as well as erection estimating and costing of architectural porcelain enamel. Attendance at the meet is open only to members of the architectural division, Vicary reported.

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65 industry leaders speak at NISA meet

More than 1,000 members of the National Industrial Service Assn., Inc., were on hand for the 23rd annual convention at Philadelphia's Hotel Bellevue-Stratford, May 14-16. General business studies, technical seminars and visits to electric motor service shops in the Philadelphia area were on the agenda for the representatives of electric motor, generator and transformer repair and service shops on the North American Continent.

Sixty-five industry leaders were on the program, serving as speakers, moderators



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and panelists. Keynote speaker was Howard F. Mc-Cullough, general manager of the service shop Dept. of General Electric Co., New York City. Speaking on "Challenges to the Electrical Service Industry", he told the group "it appears to me that within the next ten vears the electrical service industry will more than double its business on the basis of 1956 dollars." He stated his concern for the need for better planning by the association members, stressing the need for better understanding of automation in the face of a shortening

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labor pool and the drastic need for a break-through program of developing technical people to supply the electric motor servicing industry.

NISA past president J. H. Previty of Penn Electric Motor company was convention general chairman. New officers elected for the national organization are C. J. Covington, Dowzer Electric Machinery Works, Mount Vernon, Ill., president; Alfred Elson, Jr., New England Machine & Electric Co., vice president; Paul M. Sievert, Sievert Electric Co., secretary; Frank W. Ross, Ross

Electric Motor Shop, treasurer. Executive offices of the Assn. are at St. Louis with Fred Wipperman executive secretary, R. E. Wilson, staff engineer, and Miss Marion Wassell, executive assistant.

Welding Show success sponsors-visitors say

Backed by some 750 experts in the field of welding and a million dollars worth of welding gear and accessories (some never before shown) the fourth annual American Welding Society's Welding show, held at Buf-

falo, May 9-11, was tops in interest to a nation-wide drawing of visitors and Society members. The show was timed to coincide with the AWS's annual meeting at Buffalo, held the week of May 7. More than a third larger than last year's show held in Kansas City, finish editors believe that they saw more live demonstrations of welding processes than have ever been conducted under a single roof heretofore. Sixty three papers by some 120 speakers were presented during the Society meeting.



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Sending your crated product through the Chicago Mill and Lumber Company Laboratory is like taking out an insurance policy for safe delivery.

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AIM* for better securement of appliance shipments with Acme Steel Strapping Ideas



*Acme dea Man to help solve your problems A recent survey of Bastian Morley Co., Inc. customers shows less than 1% in-transit damage when shipping water heaters with Acme Steel's "anchor load" technique. (Idea 449).

Acme Steel Unit-Load Band permits bracing many different size crates in one shipment. Anchor load allows "double decking" and makes possible meeting minimum car load shipment weight. You'll find that Acme Steel Strapping methods help speed preparation and reduce cost of bracing material. Customers welcome safe arrival and easy unloading.

There are many practical, money saving ideas for bracing appliance shipments. Your Acme Idea Man will gladly study your present system, demonstrate the excellent Acme Steel Strapping equipment and recommend the best strapping method for you. Call him at the Acme Steel Company listing in your telephone book. Or write for further information to Dept. RS-26.

ACME STEEL PRODUCTS DIVISION

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2840 ARCHER AVENUE, CHICAGO 8, ILLINOIS . ACME STEEL CO. OF CANADA, LTD., TORONTO

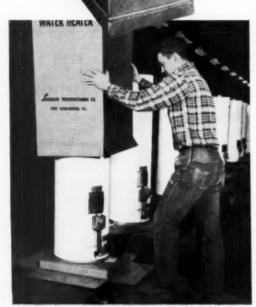


Here's why Lawson uses International shipping containers

Easy to handle...provides safe transit!

- Carton is designed for fast, easy assembly—all-fibre construction cuts packing time 20%.
- Safer... no nails, no bolts—chances of personal injury cut to minimum.
- Special tube and cap design enables lift truck to handle easily.
- Interlocking flange cap provides grip for easy manual handling, necessary for large containers.
- Container can be opened without damage to contents, reclosed for further shipment.
- Dustproof construction assures factory-fresh arrival.
- Large, clean surfaces allow product identification and advertising.

If you have a problem in container design, write us for full details of our custom design service.



Note all-corrugated fibre skid for easier, faster assembly.



Lift truck inserts the lifting flange under one side of cap, pulls up. Strong construction enables sure, fast lifting, close stacking without usual jostling.





safe transit

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editorial voice of the national safe transit program

devoted to improving packaging methods and shipping and materials handling methods for the appliance and metal products manufacturing industries. This section contains plant experience information and industry advances for the use of all executives and plant men interested in improving packaging and shipping methods and in loss prevention. The section contains complete information on the national safe transit pre-shipment testing program for packaged finished products and detailed reports of divisions and sub-committees of the National Safe Transit Committee.

published monthly as special section of finish - the magazine of appliance and metal products manufacturing

Packaging Fresh'nd-aires at Grayslake

streamlined packaging operation provides top economy in final handling operation. sub-assembly of packaged parts speeds up final operations.



PRIDE in their product, and well aware of the importance of proper packaging procedures to assure always satisfactory delivery of their

room air conditioners, the Fresh'nd-aire-Division of Cory Corp., has gone all out to provide the best and latest in packaging procedures at their Grayslake, Ill., operation.

The smooth packaging operation, told in photos on the following pages, begins actually long before the package comes into being. Lewis W. Seil, general manager of the Grayslake operation, working in cooperation with leading suppliers of packaging materials and equipment, put long study into the best and most applicable materials and methods available. The present day operation shows the value and wisdom of his choices.

Set-up of packaging operation

The actual packaging operation is done on a roller conveyor line 'L' shaped to take full advantage of available space. As the air conditioner unit leaves final assembly and inspection, one worker prepares the pallet on which the conditioner rides throughout the packaging operation, and which becomes a part of the final for-shipment package.

The pallet, a wooden reinforced corrugated piece, was specifically designed for the Fresh'nd-aire. The installation instructions and other data in a marked

envelope are attached by tape to the base before the pallet is set on the conveyor line.

Cabinet-conditioner bolted down

The air conditioner cabinet is then placed onto the pallet and, in a two-man

operation, the inspected air conditioner unit is slipped into place inside the cabinet. The outlet cord is folded into the cabinet and out of the way.

The conditioner is then screwed down to this pallet using hook bent "L" shaped metal pieces at each end, designed to



finish JUNE . 1956



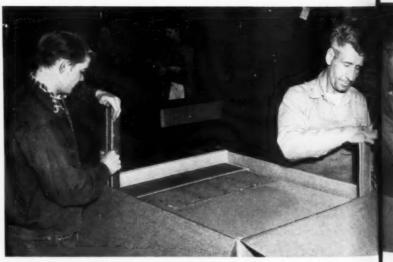
Pallet used in the package is purchased made up. Here, the instruction envelope is taped onto the flat before pallet is placed on the line.



Second phase is placement of the air conditioner cabinet onto the pallet where it is bolted on to provide a rigid form for the remaining phases. This pallet is a part of the final package.



Operating controls, protected by paper, are then wrapped into a folded corrugated protector and slipped into position at the front.



After the front plastic has been placed snug against the casement, two men slip the corrugated carton into place and fit corner posts snugly into position. This provides assurance that container and parts are tight.

FRESH'ND-AIRE CONTINUED

provide complete fixment of the unit. The control panel and connecting cords, wrapped in wrapper and then protected by a corrugated wrap-around, are fitted into predetermined spot. Here, requiring no lash-down, they ride safety throughout the movements of the packaged container.

While these operations are going along, a sub-packaging line is working

as shown on the last page of this article. Everything from window installation pieces to each screw needed in this operation, have been gathered and packaged into a container box which fits within the final package.

The plastic front, protected by a wax bag cover, is fitted against the container. Also put into place is the carton containing the necessary accessories. Then the outer corrugated carton is slipped into place, and after corner posts of cardboard inserted, stapled into a closed package.

In the strapping operation, trays have been installed alongside the conveyor line. With these pre-cut and partially prepared wires, it is a simple, safe and speedy operation to place them into position and then tension them lengthwise around the container. Two straps are all that are used on each package and have proven out to provide all the support necessary.



Insert filler piece is then placed at front of conditioner. This tightly fitted piece assures elimination of any cross or vertical movement of the conditioner during its transportation, delivery.



Lock plate is then bolted on, tying the outer case and the pallet together into a rigid form. Automatic power tools are used in operation to assure correct tension.



Stapling down the top is done by means of a powered hand tool after the containers of installation parts are placed in the top of the package. The unit then moves to final stage where straps are tensioned into place.



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Safe Transit label — to assure shipper, dealer and customer of management's work to provide tops in packaging and shipment procedures — is attached simultaneously with the final strapping . . . another pre-tested package on its way.



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INLAND PRODUCTION AND SERVICE FACILITIES include twelve corrugated box plants completely equipped with the latest machines, manned by skilled craftsmen. Inland customers receive prompt delivery of quality containers needed to meet production and delivery schedules.

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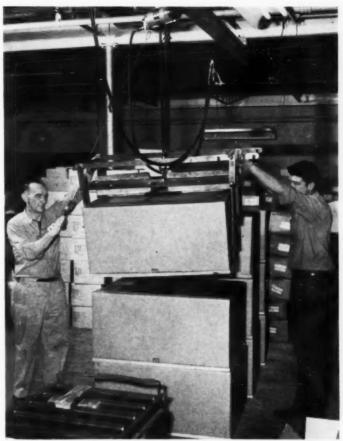
Bolts and braces for installation of the Fresh'ndaire are gathered and wrapped in butcher paper. Separating the parts into understandable groups are beneficial to the person installing the unit.

Screw table used is semicircular in design with sections marked to show the envelope filler how many of each type of screw goes into the envelope. Filled screw container is then routed to the line.



Final sub-assembly operation is to gather parts that have previously been wrapped and insert them in single box. Also added by this wrapper are the instruction booklets and the guarantee for the unit.





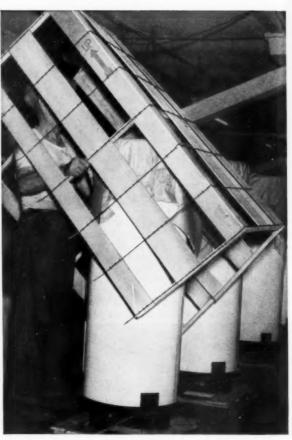
Completed cartons are elevated by means of this gripper hoist and transported to the end of the line where cartons are stacked three high. This materially speeds up operation of the fork truck.



The wooden slat assembled pallet unit seen in the first pictures has a purpose other than merely providing strength to the carton bottom. Each slat is so placed and is of correct height to allow easy entry by the tines of a fork truck. One—two—or three cartons are easily handled, and it is possible to pick up partial loads.



This coal circulator weighs 539 pounds. It's assembled on base of wirebound crate. Total man-hours for packing come to just 6 minutes.



Water heater bases are bolted to wirebound crate base before assembly. At this point, only 3 minutes are needed to complete crating.

Appliance maker uses 17 General-engineered wirebounds to cut packing costs on 47 items

Gray and Dudley Co., Nashville, Tenn., obtained the figures on packing and shipping costs using wire-bounds designed by General Box Company, and compared these with the costs of making their own shipping crates. The study covered 47 different designs and sizes of electric water heaters, electric and gas ranges, oil circulators, coal circulators, cast iron ranges, army ranges, and their spare parts. Wirebounds won a clean decision.

Comparison was made on the basis of man-hours for packing, shipping weights, and over-all packing costs. In the case of a 539-pound coal circulator, for example, the saving was 80% in man-hours, 10% in shipping weight, and 16% in over-all packing cost. The assembly and packing operations were integrated to save handling costs; noise and dust were eliminated, and the appearance of the products in transit was improved. The crated products have a Safe Transit O.K., too.

It's easy to find out how much General-engineered wirebounds can save you. Let us send a man. No obligation. Just write General Box.

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

Engineered Containers for Every Shipping Need

Wirebound Crates and Boxes ● Generalift Pallet Boxes ● Corrugated Boxes ● Cleated Corrugated Boxes ● All-Bound Boxes ● Stitched Panel Crates

General Box

* * * * *

SPECULAR GLOSS CONTINUED

not differ generally from that obtained on the multipurpose instrument by more than 5 gloss units.

The dimensions of the rectangular source and receptor aperatures thus determined were 2.7° x 1.8° and 9.9° x 7.9°, respectively. With slight modification and addition of tolerances, this glossmeter geometry was ultimately recommended to the PEI and ASTM for incorporation in their test methods.

The receptor aperture was rounded off to whole degrees. With slight scale modification, the angular source size in the plane of measurement was reduced. and that perpendicular to this plane increased, to permit easier utilization of existing lamp filaments. Aperture tolerances were chosen partly on the basis of experience with similar tolerances for 60° specular gloss geometry and partly on the basis of the present investigation. The recommended glossmeter apertures and tolerances of the PEI and ASTM proposed methods are given in Table 1.

It should be noted that specular gloss is but one of several factors that are related to the quality of gloss as perceived by the eye. Porcelain enamels happen to fall in the range, 1 to 100 gloss units, for which specular gloss correlates well with the perceived quality. For surfaces of lower gloss, however, such as paper and flat paints, the eye seems to be guided more by reflection at grazing angles and by the contrast between reflection in the specular direction and that in other directions. On the hand, in the gloss range above that of the enamels, distinctness of images and absence of bloom or haze about them become the decisive factors influencing the visual judgment. Moreover, there are still other factors that must be taken into account in special situations.4.

Also, in the specular gloss range, one can often distinguish the specular component in the reflected light from that which is diffused more or less uniformly in all directions. It is now generally considered desirable to correct measurements of specular gloss by subtracting the contribution made by the diffuse component, although so far only rough approximations to the magnitude of the latter are possible in most cases.1

Methods of determining glass, by Richard S. Hunter, J. Research NBS 18, 19 (1937) RP958; Definition and measurement of glass, by V. G. W. Harrison, The Printing and Allied Trades Research Assoc., Cambridge, England, 1945.



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ATA "Care Cuts Claims" campaign a step forward

The new "Care Cuts Claims" launched in April by the Freight Claim council of the American Trucking Assn., Inc., marks a step forward in carrier and shipper transportation, according to John Oliver, NST committee secretary. Commenting on ATA's program and its featuring of the Safe Transit label, Oliver said Since its beginning in 1948, the National Safe Transit Program has had the full cooperation of leading carner groups in gaining recognition of the Safe Transit label - the emblem used by our certified manufacturers to identify their pre-shipment tested packaged products. But for the first time, the new 'Care Cuts Claims' program brings together shipper and carrier in a uniprogram to prevent freight loss and damage." The program is built around a presentation unit and a series of poster units, directed to the employee who actually handles freight. It consists of seven front sheets, which face handling personnel and serve as visual aids for talks on the basic elements of loss and damage prevention. A full report on the presentation appeared on page ST-3 in the Safe Transit section of the April, 1956, issue of finish.

Committee plans metal curtain wall workshop

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Committee members of the BRI metal curtain wall workshop, have met to plan for a conference for BRI members for development of technical information for general use in the building industry for the design, manufacture and erection of metal curtain walls. The workshop conference, a twoday meeting, will be by invitation, and a general questionnaire is now being circulated to formulate who should and will attend the meet. Committee members, who met for the conference study, were Bill Brinker, PEI; Walter C. Conger, Republic Steel Corp.; Richard D. Hickman, A. F. Jorss Iron Works, Inc.; John P. Jansson, Aluminum Window Mfrs. Assn.; H. F. Johnson, Aluminum Co. of America; Milton Male, U. S. Steel Corp.; C. C. Morgan, Cupples Products Corp.; Richard E. Paret, American Iron & Steel Institute; John R. Quin, Reynolds Metals Co.; T. S. Rogers, Owens-Corning Fiberglas Corp.; J. G. Terry, Armco Steel Corp.; and Bill Zipp, Ceco Steel Products Co.

Vanant Co. certified as Safe Transit lab

The Vanant Co., of Milwaukee, Wis., has been certified as a Safe Transit laboratory by the National Safe Transit Committee, it is reported from Washington. D.C. where the committee is headquartered. Named earlier were the Container Corp. of America, California Container Corp. Div., Los Angeles, Calif.; T. R. Miller Mill Co., Inc., Brewton, Ala., and Bathurst Power and Paper Co., Ltd., St. Laurent, Quebec: The new addition brings to 50 the number of laboratory certifications. In announcing the new certifications, R. F. Bisbee, general chairman for the committee announced that A. W. Gaulke. sales manager for Vanant. had been appointed regional chairman for his area. L. W. Schmucker, O. A. Sutton Corp., Wichita, Kan.; J. W. Griffith, Institute of Packaging, Dallas, Tex., had all been named regional chairman for their respective

NST Certifications reach 221; 11 added

With eleven new companies now added to the list, the number of certified participants in the national safe transit program has reached 221. The new members announced by the National Safe Transit Committee are Lewyt Air Conditioner Corp., Brooklyn, N. Y.; Pryne & Co., Pomona, Calif.; Foster Refrigerator Corp., Hudson, N. Y.; Acme Industries, Inc., Jackson, Mich.; Morrison Steel Products, Inc., Buffalo, N. Y.; Penn Ventilator Co., Philadelphia, Penn.; the

Bettcher Mfg. Corp., Cleveland, O.; Kreonite, Inc., Wichita, Kan.; Diebold, Inc., Canton, O.; Westinghouse Electric Corp., Air Conditioning Division, Staunton, Va.; and Bay State Abrasive Products Co., Westboro, Mass.

Reveal industrial bags a \$670,486,000 industry

The total value of packaging materials in the industrial bags field constitutes a volume of \$670,486,000 or about 9% of the total value of containers and packaging materials, O. W. Fisher, vice president of the Kennedy Car Liner and Bag Co., told attending members at the SIPMHE meeting at Philadelphia, April 23. "One of the first applications for especially constructed bags, Fisher revealed, was for the protection of tops of kitchen cabinets. The instant success and approval of the protector caused bags to soon become standard packaging products. Fisher asserted, until today they are considered just as essential as cartons or other packaging materials.

Turquoise gaining in sales preference

The rise of turquoise as a new popular fashion choice shows a trend away from pink, a study of 1956 appliance sales to date show, reports Walter Jeffrey, vice president in charge of Kel-vinator sales. "With more than six months of the '56 model year passed, a Kel-vinator appliances survey shows that Bermuda pink, while still number one choice, is accounting for a smaller percentage of total color production than it did in 1955," Jeffrey said. "Buttercup yellow, second in 1955, is an even stronger second currently, and surf turquoise, introduced this year to replace the relatively unpopular fern green shade, has jumped to third place.' Jeffrey noted that pink, which accounted for 53 per cent of Kelvinator's '55 color production, is now accounting for 31 per cent; buttercup yellow has risen from 13 in 1955 to 20 per cent at present and surf turquoise currently rounds out the top three with 16 per cent.



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COLOR AND COST CONTINUED

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three months when possible (about 20 per cent of ware is in color).

It was noted that in contrast to the ten colors used in this plant largely for sanitary ware, Texlite of Texas (a sign plant) has over 900 formulas in color.

The "National Picture"

Speaking on commercial research, W. B. Gilmour cited leading stocks, FRB index, F. W. Dodge reports, steel production, etc., as examples of the outstanding first quarter of 1956. He pointed to increased car and consumer inventories, manufacturer inventories and consumer credit as balancing factors.

"The cost of doing business will continue to go up in '56." he agreed.

"The last half of '56 should reflect about the present level, a 'period of relaxation'," he said. "Important factors to watch are (1) rising inventories—steel and durables; (2) interest rates rising—money harder to get; and (3) confidence. Public confidence hasn't dwindled yet, he pointed out, and the level of general business is higher than a year ago.

Manufacturers should "be ready to roll with the punch," he concluded. 1956 should be the biggest year yet for the alert producer.